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JULY 1960

Volume 55 Number 7

UNIVERSITY OF MICHIGAN
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IN THIS ISSUE

TRENDS THAT WILL AFFECT YOUR PRACTICE
A UNIQUE DIAGNOSTIC LABORATORY
MEDICATED PET FOODS – BOON OR BOOMERANG?
ROUTINE SURGERY IN SMALL ANIMAL PRACTICE
PUBLIC HEALTH ACTIVITIES BUILD A PRACTICE

**Complete Index on Page 5**

**Food Poisoning** **Viral Infection**
**Bacterial Infection** **Malnutrition**

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✓ **Eliminates post-treatment constipati**

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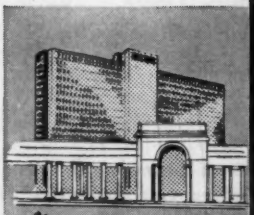

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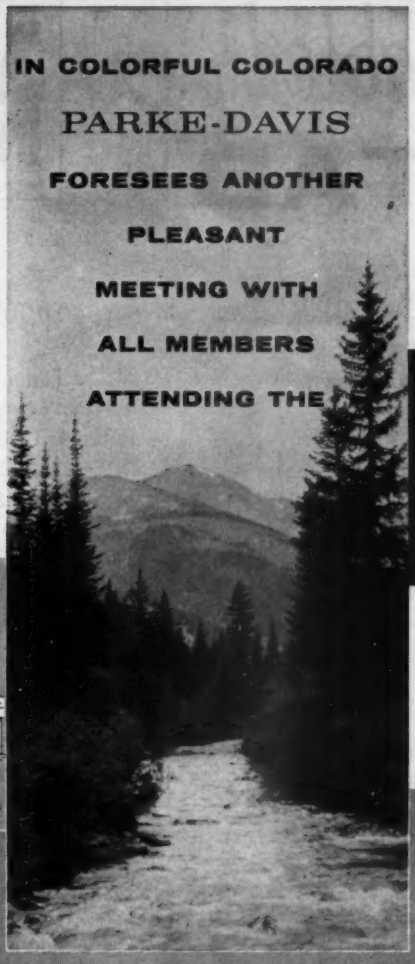

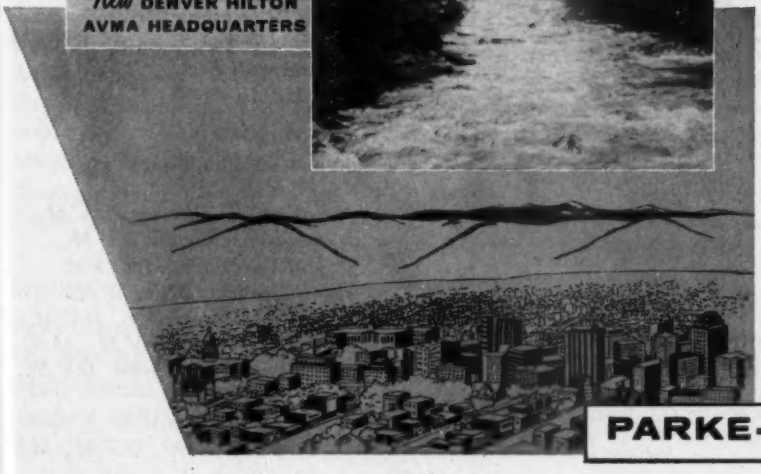

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The function of VETERINARY MEDICINE is to serve as an open forum (within ethical restrictions) . . . to act as a bridge between the conclusions of laboratory research and the experiences of successful clinical practice . . . and to lead, not push this profession, through accurate and sound reporting, in keeping abreast of the progress of veterinary science.

This is primarily a practitioner's journal, and its policy was clearly set forth by the late Dr. Anderes when he stated that VETERINARY MEDICINE is dedicated to explore every possible lead of potential value; encourage correspondence with the best qualified; keep alert to new ideas; sound out newer information, and present these items to the practitioner at the earliest possible date.

This has been the policy of this publication for 55 years, and it will be earnestly pursued in each coming year.

C. M. Cooper
Editor and Publisher

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1. Harris, J. R. and Clarkson, T. B.: Prevention of Relapses in Milk Fever, Vet. Med. 12:696 (Dec, 1955).

2. Baker, W. L., Jr.: Prevention of Relapses in Milk Fever, N. Am. Vet., 37:203 (Mar., 1956).

3. Graham, K.D.: Milk Fever Relapses, Vet. News (Canada) 20: (Nov., 1958).


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# V

# NEWS COMMENT

**Hog Cholera Danger**

With only one hog in 10 vaccinated for cholera compared to one out of two in 1950, the nation's hog belt is walking into the summer with its chin exposed. While increased use of modified virus and elimination of live virus by some states seems to have relieved the pressure, veterinarians will do well to consider hog cholera carefully and seriously on every swine call. Early diagnosis is the only hope of surviving a major disaster should the fuse be sparked on this powder keg situation.

**Frozen Dried Semen**

The first calf conceived by frozen-dried semen was born at the University of Maryland April 6th. This birth marked the final proof of a successful long time research problem which will be a milestone in advancement of artificial insemination methods. Sperm cells were suspended on a nylon gauze and placed in a vacuum. While under vacuum, rapid evaporation actually froze the sperm cells. Moisture removal was continued under vacuum until the material was dry. As technics and studies continue, it is hoped that the expensive refrigeration of frozen semen will be eliminated.

**Bursa Research**

The Bursa of Fabricus, previously relegated to the poultry anatomy books has found new research significance. Work at the Ohio Experiment Station suggests that this peculiar structure helps chicks produce antibodies before the spleen takes over this function at about five weeks of age. When the bursa was removed at two weeks of age, laboratory chicks lost their power to build up antibodies.

**Co-op Monopolies**

A court ruling has clearly drawn the line which farm co-ops must not cross. This ruling did not alter the anti-trust exemption that co-ops have had short of monopoly, but clearly established that they must not deliberately set out to take over a market and form a monopoly. The Maryland & Virginia Milk Producers must stand trial for attempting to monopolize the Washington D.C. market.

**Deep Frozen Whole Milk**

The British are trying out deep-frozen whole milk with one major firm introducing the product on a commercial basis. Since production was started the new product has been used largely by shipping lines, oil companies in the Middle East, and school children in that area. Current output is only 5,000 gallons a week but expansion to 20,000 gallons a week is anticipated shortly. To produce the product, regular whole milk is pasteurized and then given special ultrasonic vibrations. It is then frozen and stored at 12 C. When the milk is thawed, it is impossible to differentiate it from ordinary pasteurized milk.

**Scotch Whiskey For Chickens**

The beverage industry is at it again. A Scotch Whiskey diet is producing faster growth of chickens according to the International Federation of Agricultural Producers in England. Malt distillers' dried solubles, produced from the liquid remaining when malt whisky is first distilled from fermented wort; is rich in B-vitamins, protein and contains "growth factors." In farm experiments, Malt D.D.S. increased the growth rate of broiler chickens by nearly 9% when replacing barley and 3% when replacing dried skim milk.

**Alfalfa Pasture Bloat**

Iowa State University scientists report that according to their latest observations the most effective method of preventing alfalfa pasture bloat is green-chopping the alfalfa and feeding it in dry lot. If bloat does occur on green-chopped alfalfa, they recommend sprinkling crude soybean oil over the chopped material at the rate of ½ pound per 100 pounds of body weight of animal. Feeding yearling cattle ¼ pound soybean oil in 1¼ pounds grain controls bloat for 3-4 hours. Feeding trace minerals, heavy fertilization of pasture with phosphate, or feeding ground soybeans or soybean flakes have shown no evidence of value in bloat control.

V

Here each month are published ideas, suggestions and comments by VM reporters.

# The Meeting Circuit

## Northwest Missouri Swine Repopulation Laboratory Established

Work has begun at Mound City on a building to house the disease-free pig laboratory of the Northwest Missouri Swine Repopulation Corporation, owned by six practicing veterinarians of northwest Missouri. Dr. Hugh Wallace of Mound City will be the director.

After construction time and a start up period, the laboratory should be in operation by September. When capacity production is reached, the laboratory will rear to four weeks of age 144 disease-free pigs per month, to take their place on midwest farms, where they will grow up to become disease-free breeding animals, under the watchful eye of their local veterinarians.

Livestock operators who have been put out of the pig raising business by disease will be the first to appreciate the value of the swine repopulation program. Of further importance is the increased profitability of disease-free pigs, as demonstrated by their ability to grow to 200 pounds weight on 20 to 25% less feed than stock of the same breeding which have not been so produced.

Credit for bringing this program to the industry belongs to Dr. Geo. Young and associates at the University of Nebraska. Dr. Young heads up the National Swine Repopulation Association, of which the Northwest Missouri laboratory will be a member.

Dr. Wallace will be joined in practice by Dr. Karl Hansen, a member of this year's senior veterinary class at Kansas State University, in order to afford the pig laboratory the necessary veterinary supervision. One of their jobs now, will be to meet with interested individuals and groups to acquaint them with the possibilities and the limitations of the program, and with what they must do to be ready for disease-free breeding stock. They feel that this must be the starting point for any sound program of swine breeding herd management.

The veterinarian-owners of the laboratory are Doctors Wallace, Hansen, R. L. Cundall of Fairfax, R. D. Dunham of Westboro, Jack Scammon of Rockport, and A. L. Maxfield of St. Joseph.

## Leptospiral Meningitis

Acute aseptic meningitis due to Leptospira organisms, with or without jaundice, is more frequent than generally appreciated. With jaundice, symptoms of aseptic meningitis suggest Leptospiral infection. Without jaundice, a high index of suspicion and serial agglutination procedures are necessary for diagnosis. Blood titers are generally highest in the second or third week.

Symptoms are similar to those of other central nervous system infections, frequently mimicking poliomyelitis or tuberculous meningitis. Onset is sudden, with myalgia, mainly of the leg muscles, fever, meningeal irritation, and extreme conjunctival or

scleral infection. Severity ranges from slight meningeal irritation to coma and death. Spinal fluid examination is not diagnostic. Fluid may be normal early in disease; later pleocytosis and increased protein may be found. Spinal fluid sugar is occasionally temporarily reduced.

In ten patients with aseptic meningitis, one of three Leptospira species was diagnosed by serial increase in blood agglutinins. Several of the patients came from the same area and had had contact with animals. Only one patient was jaundiced; one child died. Four-fifths of hospital admissions were between July and September. Antibiotics are of little value once the disease is firmly established.

*Arch. Int. Med. 103:876-885, 1959*

## Vena Caval Replacement

A report in the *J. Thoracic & Cardiovas. Surg. 38:172-178, 1959* establishes that alcohol-preserved segments of bovine aorta appear to be suitable for use as superior vena caval replacements in dogs. Excised vena caval segments in 11 dogs were replaced by bovine aorta that had been preserved in 70% ethyl alcohol seven to eight months. Grafts were patent in two dogs 17 days to 18 months after replacement. Only two of the 11 aortic grafts became occluded.

## Herd Health Management

Dr. Robert Ormsbee says, "Herd health management relationships between the client and the practitioner must be based on a profit factor rather than a loose client-doctor relationship. Programming must be planned on a long-range basis because maximum benefits cannot be gained in fewer than five or six generations in the life cycle of the herd. Client confidence must be complete and full authority entrusted to the practitioner. It is folly to attempt a program with a lukewarm client. If he cannot be entirely sold through the evidence of results achieved for others, better find a more fertile field for your efforts. The first essential in building a herd health management practice is a client who will give you the chance to demonstrate what you can do for him within the limits of your plan and without interference in your management of his herd."

*K.S.U. Extension Newsletter*

## "City-Farmers" are Clients

Farmers are getting a number of new neighbors according to a report in Agricultural Institute News. City people are moving to the country in increasing numbers. Non-farm people now outnumber farm people by a five to three ratio in rural areas. Winthrop Rockefeller has noted that the same technology that made the 40-acre farm obsolete also freed the factory from its ties to the big city. No longer do large numbers of workers need to live within walking distance of the place of work. Veterinarians practicing in areas affected by this population shift report that the city client living in the country is rapidly becoming a valued client. They urgently need professional help for their livestock hobbies and make willing, cooperative clients prepared to pay a fair professional fee. They make a good living and expect their veterinarian to do likewise.

## Asphalt Barnyards

You can expect to see more barnyards paved with asphalt in the near future. Recent farm engineering studies show that asphalt does a fine job when properly applied. It takes a qualified contractor to handle such a project successfully. All foreign matter is cleaned away and the bare soil rolled. Crushed limestone or slag makes the base. It takes a packed layer six inches thick or more. Asphalt should be at least two inches thick and three inches where it butts up to bunks or watering facilities. Cattle will slip and slide on a surface that is too smooth but a dense and stable mixture is required for cleaning and scraping with the tractor.

VM SPECIAL REPORT

# Trends That Will Affect Your Practice!

Veterinarians are most anxious to keep abreast of developments in the field, and in the swine industry a number of the profession are interested in the production of *Specific Pathogen-Free* Pigs. However, another innovation creeping into the industry is the field application of artificial insemination. Heretofore, trials and experiments with artificial insemination in swine have been confined largely to the laboratory; now, however, the program is reaching into the field. Naturally, veterinarians are wondering how they will fit into the picture or at least be posted on developments, so that they have a talking knowledge of the program with their clients.

The program is in effect in several foreign countries with a high percent of females serviced artificially in Japan and Korea, while in other countries such as Denmark and Norway and England, the program has reached the stage of field application. In recent years considerable interest has been generated in the United States by various workers, with most of the interest being generated within commercial cattle insemination organizations. This increased interest has been brought about by a number of factors, particularly the identification of superior individuals, characterized by rate of gain, feed efficiency and meaty carcass thoroughly tested instead of identified as being superior by the eyes of a judge.

Disease control has also created interest in the program because the swine industry has awakened to the fact that diseases such as virus pneumonia, atrophic rhinitis, and other chronic diseases have created financial havoc in their herds and that in many cases an infected boar has also introduced the disease. Thus, several particularly alert swine breeders are interested in the program. Producers of *Specific Pathogen-Free* Pigs are interested because of the possibility of breeding their herds without the introduction of the boar on the same premises. However, there is little information on the possibilities of swine disease being spread by boar semen. The small breeder, the man with just a few sows, is interested because he could then breed his few sows without the trouble and expense of acquiring a boar. Also the breeder using multiple farrowing is intensely interested in the program.

## Field Trials

The problems of introducing such a program in the field are beyond the scope of the laboratory; thus, commercial organizations are organizing field trials at the present time. Dr. James Pirie of Eastern Iowa Breeders, Cedar Rapids, Iowa, a pioneer in artificial insemination of dairy cattle, has formulated an organization termed P.I.G., Pork Improvement Genes, and is in the process of inseminating several hundred sows to ten of the top production tested boars produced in Iowa. His field results look encouraging and full details of this program will be available in the future.

Three bull studs in Wisconsin sponsored a program supervised by Dr. H. L. Self, Animal Husbandryman now at Iowa State University, where 200 sows were artificially bred in a 90-day period using semen from 12 boars. Their results showed that they obtained a 55% conception with the first service. This compares with a 65% conception obtained with cattle or with a 67% conception obtained with natural service in swine. The litter size was good but estrus identification was difficult.

Dr. James Lovell of Iowa State University, a pioneer in the field of insemination of swine, has bred over 300 sows with records showing that 40% settle in first service and 25% settle on second service. Dr. Lovell, who has appeared on many veterinary programs throughout the country, has demonstrated that semen can be easily collected from a boar without an artificial vagina by merely using the clenched fist as a simulated portion of the sow's reproductive tract. Further investigational work is in progress throughout the country on various aspects of the program.

The average 300 pound boar will ejaculate around 250 cc. of semen, only a fraction of which is sperm rich. Thus, this has to be separated from the accessory gland fluids. Several semen extenders have been used, with evidence to date that the same extenders used for bull semen will not suffice for boar semen. The average collection will provide sufficient numbers of sperm for around 12 sows. A diluter-preservative is needed to make it possible to hold semen with a good fertility rate for more than three to four days. The volume of semen necessary for maximum conception rate is not known but evidence to date indicates that a larger volume is necessary than that used in cattle. In one field trial a 50 cc. inseminating dose was used. A review of the anatomy of the reproductive tract of the sow will reveal greater problems in traversing the cervix in sows than in cattle. The ideal location in the reproductive tract for the deposition of semen in order to receive maximum results is not definitely known.

Boar semen to date has not been successfully frozen like cattle semen; thus, many researchers are lending their efforts toward this phase of the program. Field workers are of the opinion that the program will be practical only when frozen semen can be used. Producers find it difficult to determine estrus in their swine. Swollen vulvas are not the only criterion that can be used because many sows do not manifest this symptom. Also, several attempts have been made to control estrus in swine, and to date this has not been practical from the field standpoint.

Thus, it appears that the program has many problems to overcome before field acceptance will be possible. Preservation of semen, deposition of semen, estrus control and identification of estrus all pose problems in obtaining field acceptance. Researchers indicate that artificial insemination of swine in 1960 is in the same stage artificial insemination of cattle was in during 1945. Veterinarians will find it profitable to keep in touch with the progress of the program because many of their swine producing clients will be depending on them for information.

# Fertility Evaluation Of Bulls

Fertility evaluation of bulls is an important part of cattle improvement programs. Cattlemen are becoming extremely conscious of the efficiency of their herds, realizing that 80 percent calf crops cover only production costs in most herds. Another innovation in cattle improvement programs is production testing to aid in the selection of animals with the greatest growth factor and feed utilization efficiency, which are heritable factors. Bull Testing Stations are thus organized in several states.

The Shorthorn Breeders in Iowa organized a testing station in Iowa with 63 bulls from 46 different consignors. These animals went on test the first of July, 1959. The bulls finished test on February 1, 1960, and were offered for sale one month later. One of the sale requirements besides negative tests for brucellosis, tuberculosis, and leptospirosis was a fertility evaluation. The bulls were all given a physical examination with close scrutiny given to feet, legs, eyes, and external portion of reproductive tract. The average age of the bulls was 19 months with a range of two years to 17 months.

A chute designed for foot trimming was used for restraint. The preputial tuft was cleansed and an electrical ejaculator (Nicholson Mfg., Inc., Denver, Colorado) was used to obtain the semen. The ejaculate was collected in a 250 cc. beaker contained in a warm water bath in a two-quart pan. Cotton was used to surround the beaker for protection and conservation of heat.

The ejaculate was examined immediately for motility, concentration, morphology and percent of live-dead sperms and then rated. Fifty-one bulls yielded satisfactory ejaculates with adequate erection and protrusion of the penis. Six of the bulls failed to protrude the penis on first collection and when re-examined four days later, protruded the penis and yielded ejaculates. These 58 bulls were rated as *Satisfactory Breeders* when the semen evaluation and physical characteristics were weighed.

Two bulls were rated as *Unsatisfactory Breeders* because of extreme deviations of the penis when erected. It is not known whether or not the electro-ejaculator accentuates these deviations. These bulls failed to yield satisfactory semen samples. These bulls were re-examined three times at four-day intervals. Two of the bulls obtained erection and protrusion of the penis while one failed to protrude the penis, ejaculating within the sheath.

Three bulls possessed fibrous bands three to four inches in length from the ventral surface of the penis to an area near the glans. In all cases these fibrous bands caused extreme deviations of the penis when it was erected. This condition was corrected surgically.

Three eight-hour days were required to evaluate the 63 bulls, with over 6 extra hours spent on tabulation of records. Ample help was present for restraining the bulls, cleansing the preputial tuft and manipulating the rectal probe. With similar facilities, it appears that without difficulties, 20 bulls could be evaluated per day. However, if difficulty was encountered, only a much lesser number could be evaluated. The average fee in Iowa is $10.00 per bull for fertility evaluation.

Fertility evaluation is rapidly becoming an important phase for the practitioner in a beef cattle practice. Veterinarians in practice in these areas should equip themselves with the necessary equipment to render this service. If this service is neglected by the profession, others will be most happy to offer the service.

*The home of the Hamilton Hospital for Animals at Ripley is a modern structure, housing the latest in lab and diagnostic facilities.*

# Privately Endowed Diagnostic Laboratory Serves New York State Veterinarians

In the Chautauqua County town of Ripley, N. Y. . . . not far from the Pennsylvania state line, is the Hamilton Hospital for Animals, a privately endowed Veterinary Diagnostic Laboratory . . . the only privately operated diagnostic lab for animals in New York State and one of the few in the country.

At the Ripley facilities, heads of animals and other specimens, are brought here for diagnosis of rabies or other animal diseases. Bovine blood samples of cattle for brucellosis were, up until this year, a big undertaking at the Hamilton Hospital for Animals. In 1958 there were 123,983 specimens tested in this category at the Laboratory. But now that New York State has been declared brucellosis free, thanks in part to work done by the Hamilton Hospital for Animals, this brucellosis testing on cattle has dropped down to a trickle.

The Hamilton Hospital for Animals—a unique setup—is under the direction of William M. Evans, D.V.M. Dr. Evans came to Ripley 11 years ago from Cornell University where he was director of the Diagnostic Laboratory at the Veterinary College. The local Hamilton Hospital for Animals was organized in August, 1949 and Dr. Evans has been its director ever since. Honorable Judge Alonzo G. Hinkley is head of the Trustees.

Dr. Evans is quick to point out that there are many S.P.C.A. Hospitals and many veterinarians, but this is a *privately endowed* institution for accomplishing veterinary diagnostic laboratory work. Most of

*Dr. William M. Evans, D.V.M., director of the Hamilton Hospital for Animals, is seen making a microscopic examination as part of a rabies diagnostic test.*

the diagnostic reports are based on specimens brought to the lab for testing.

How did such a pretentious facility happen to find its way into the Chautauqua County town of Ripley—one that is privately endowed?

Charles M. Hamilton, a native of Ripley, was one of Chautauqua County's most famous politicians. He was a state assemblyman and a state senator before becoming a Congressman from this district. He was one of the signers of the declaration of war against the Kaiser during World War I.

He married Bertha Lamberton from Franklin, Pa. During Mr. Hamilton's lifetime, in addition to being a politician, he was a conservationist, sportsman and raised show dogs, which he shipped all over the U. S. At one time it was reported that he had as many as 40 dogs. Mrs. Bertha Hamilton did private S.P.C.A. work.

The present site of the Hamilton Hospital for Animals, 69 West Main Street, Ripley, N. Y., is on the 17 acre estate of Mr. and Mrs. Hamilton. He died in 1942 and Mrs. Hamilton passed away two years later, in 1944. Both wills were identical and the majority of the estate was left for a trust fund "for the aid and comfort of dumb animals." The will's contents were a surprise to everyone. Her relatives contested the will and it was not until 1948 that the estate was settled.

Many people in Ripley felt that the oil-derived fortune of Representative Hamilton and the luxurious dwelling, the finest house in town, with its gold painted great hall, its black Italian marble staircases, its French library and Chinese room, its Louis XIV decor could be used for the aid of human beings.

Veterinarians of the vicinity took a dim view of the Hamilton Hospital for Animals. They envisioned a big, free institution cutting into their practices and disrupting the entire Western New York State veterinary picture. They, at the time, were firmly against it.

However, judges ruled in favor of the will and the diagnostic laboratory followed a period of experimentation with other ways of interpreting the will—none of which worked out. Finally the trustees took their problem to the Chautauqua County Veterinary Medical Society and the members came up with the diagnostic laboratory idea. This was then, the long-range project for really doing something for the "aid and comfort of dumb animals," as specified in the will.

A laboratory for diagnostic reporting, built on the estate, is used for this work. A portion of the downstairs of the Hamilton home, facing Main Street, has been turned over to the town of Ripley as a library. Dr. Evans and his wife reside upstairs.

Veterinary Diagnostic Laboratory work has and continues to be carried on with a wide range of diseases that animals might encounter. This is not research work. Other than the brucellosis project, all of the diagnosis is done free of charge.

One of the biggest activities now under way at the Hamilton Hospital for Animals concerns rabies diagnosis. This too, is done free. Dr. Evans has been qualified and approved by the New York State Health Department for diagnosing cases of rabies in animals. Last year western New York had an outbreak of rabies. Sheriff and state police cars were rushing specimens almost daily to the Ripley facilities for rabies diagnosis.

*Dr. Evans is seen checking test tube samples of blood taken from cattle and which are brought to the laboratory for examination.*

Thus, in Ripley, Chautauqua County, N. Y.—the western-most county in the state—a famous Veterinary Diagnostic Laboratory continues to work for the "aid and comfort of dumb animals," as specified in the Hamilton will, but also aiding the human health welfare as well. Special feature by — Robert Dyment.

---

# SMALL ANIMAL PRACTICE

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# Medicated Pet Foods
# Boon or Boomerang ?

QUENTIN F. McDONALD, D.V.M.*

One of the more recent developments being kicked around feed company and pharmaceutical house conference tables is the question of medicated dog and cat food. Some of these products are on the market. Several are in various stages of clinical research and no doubt many more are being planned.

Now being marketed in Michigan is a 15½ ounce can of dog food containing two gm. of piperazine base. This product retails over the counter in pet shops at around eighty-nine cents per can. Label copy states "Just one can GUARANTEES perfect results" — "satisfaction guaranteed unconditionally or your money returned" — "Safe — Gentle — Sure!"

*Veterinary Medical Director
Professional Products Division
Hill Packing Company
Topeka, Kansas

It is well known that medication through feed or water is commonly used in poultry, swine and feedlot cattle operations. These are mass production livestock enterprises and necessarily employ some mass medication technics. It is desirable that their populations be more or less homogeneous in age, size, breeding and nutritional requirements in order that feeding and management methods can be uniform. In contrast, small animal practice consists of highly individual case problems.

We recognize that under limited circumstances certain pet ailments might possibly be treated by a medicated food. Where medium to long term therapy is required (e.g. ringworm in dogs and cats) for which a safe, effective drug is available (e.g. griseofulvin) a medicated food nutritionally balanced for the species and age of animal involved might be professionally acceptable

and commercially feasible. Drugs for control of microfilaria or for preventing intrauterine infections of T. canis might also be sound applications of this concept if incorporated into appropriate nutritional vehicles.

Veterinarians will find it to their interest to become aware of certain limiting factors before the profession is inundated with clever promotional programs. Are manufacturers of these products trying to force upon the small animal practitioner a merchandising (oops! — "dispensing") program such as has been forced upon the large animal practitioner? Will the small animal hospital now need to compete for business with lay outlets as does the large animal practitioner? From past performance we can reasonably assume that some manufacturers will seek to exploit every potential outlet. This was done with sulfonamides, antibiotics, hormones and biologicals using, lamentably, identical products and packaging for all classes of trade.

Let us see where this might lead. Count up the oral medicaments that you consider "standard" in your small animal practice. Very likely you regularly use some 50 to 100 different preparations. Now think of the number of single doses of these drugs there are in your pharmacy stock — in the thousands no doubt. If each dose were in an eight ounce or one pound can of dog food you would have more medicated dog food on hand than there are canned goods in most supermarkets! This poses some interesting questions. Should you add a storage room? Should you buy a fork-lift truck and hire a warehouseman to handle these cases of food?

From a purely medical standpoint, such medications frequently do not let the veterinarian choose either the diet or drug of choice to be administered. This is shotgun therapy and has long been soundly condemned by the medical profession. We feel certain that a patient's welfare is a matter of prime importance to the practitioner. After diagnosis of a case of canine ancylostomiasis for example, he initiates a program of treatment and control. This must take into consideration the patient's age, weight, status of health, level of nutrition and severity of the parasitism. A precisely calculated dose of the anthelmintic of choice is given, based on the above criteria. Aftercare and follow-up therapy are then prescribed.

Is this not preferable to dispensing a dog food to which an anthelmintic has been added at an arbitrary, inflexible level? Worse yet, if this medicated dog food is sold over the counters, can the pet owner be relied upon to properly diagnose and treat his pet? An emphatic NO! is the only answer.

Take piperazine for example. To properly use this valuable anthelmintic in all ages and sizes of dogs, it should be packaged in at least two sizes of cans. It should be incorporated in three food formulations to provide for variations in age, nutritional requirements and the severity of the disease present in the individual case. Thus, for piperazine, a veterinarian would have to stock one or more cases of each variety to adequately administer this single drug. If all oral medicaments in your pharmacy stock were so packaged, the storage and handling problem would be chaotic.

The concept of medicated dog food is a two-edged sword. Used properly, such products might fill a need in certain limited therapeutic indications. On the other hand, they lend themselves admirably to persuasive advertising campaigns, over-the-counter promotion and to frequently disastrous misuse by ill-informed pet owners. Stripped of their appealing advertising copy, these new products offer nothing of real value to implement the veterinarian's therapeutic armamentarium. Veterinarians should carefully consider all aspects of this concept before endorsing, recommending or using products over which they will inevitably lose control.

Nutritional management of disease is closely related to primary therapy and many times will favorably influence the prognosis. The veterinarian's prerogative to prescribe for each entity as he deems fit is an undeniably logical therapeutic principle. Combinations which tend to inhibit this free choice are restrictive and frequently violate sound therapeutic principles.

# Adrenal Cortical Failure in the Dog

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Cornell University
Ithaca, New York

Spontaneous adrenal cortical failure is rarely seen in the dog. Although the condition is not considered identical to Addison's disease in man there are many similarities. Hadlow[3] has described three cases seen at autopsy that were characterized by weight loss, gastrointestinal disturbances and death. He describes histopathological lesions of the adrenal cortex, and mentions finding an increase in chromophobes and a decrease in acidophil cells in the pituitary gland that are consistent with the findings in Addison's disease.

Rogoff[6] succeeded in experimentally producing chronic and subacute adrenal insufficiency in both dogs and cats by subtotal vascular occlusion. He considers the pathologic and physiologic changes, as well as the clinical manifestations, in a majority of the animals identical with those observed in various stages of Addison's disease.

Marshak and associates[4] described a case of primary adrenocortical insufficiency in a dog that responded to replacement therapy.

In man, the etiology of many cases of adrenal cortical atrophy is unknown; however, it has been associated with infectious or degenerative diseases involving the adrenal glands such as tuberculosis, neoplasia, amyloid disease, hemochromatosis and histoplasmosis. Selective necrosis of the adrenal cortex is sometimes seen, and the similarity of the changes seen in these adrenals to the changes seen in toxic necrosis of the liver suggests the probability that they may be due to the effect of some drug to which some animals have a particular idiosyncrasy.[7]

Animals that lead a quiet life may show little change from adrenocortical insufficiency, but over a period of weeks or months they usually develop some weight loss and muscular weakness. Crisis occurs following some acute infection or relatively minor stress situation requiring an additional response from the adrenal cortex, such as parturition, overexertion, or exposure to cold. If this crisis is not recognized and treated, death results, or the animal may recover and revert to the chronic stage, which may at any time, under stress, culminate in crisis. In fully developed crisis the animal has low blood pressure, feeble pulse, cold extremities, and may be comatose. Anuria is complete and he dies in severe shock.

Clinically the condition is manifested by anorexia, nausea and vomiting, and diarrhea, which is sometimes bloody. There may be some weight loss and dehydration. Muscular weakness and atrophy are common signs that vary from just tiring easily to exhaustion. There is little significant change in the blood picture; however, there is an increase in circulating eosinophils, as

Acknowledgment. The author wishes to acknowledge the assistance of Drs. C. G. Rickard, J. King and R. Mason in the preparation of histopathological reports.

well as a loss of sodium chloride and water, and a retention of potassium, which may be of diagnostic value. As a result of the electrolyte disturbance there is a tendency toward hemoconcentration, dehydration and acidosis. In subacute and chronic cases these changes are often not sufficiently marked to be of diagnostic value, but they are characteristically present in crisis.[5]

## Diagnosis

Diagnosis is based upon history and physical examination, and may be confirmed by laboratory tests to determine the ability of the animal to retain sodium and chloride and to eliminate potassium, since the renal control of electrolyte balance is impaired in the absence of cortical hormones. Briefly, the test[1] consists of feeding a salt-free diet, on which the animal with adrenocortical insufficiency continues to excrete considerable amounts of sodium and chloride in contrast to the normal animal, and by administering excess potassium, which will not be excreted normally by the animal with adrenocortical insufficiency. The restriction of salt carries some risk, and the examination of animals by this means should not be undertaken unless continuous attention is provided and facilities are at hand for immediate intravenous injection of sodium chloride and desoxycorticosterone acetate in case of emergency. A normal animal on a restricted sodium chloride intake will conserve sodium and chloride by adequate resorption in the kidney tubules, and any excess of potassium is promptly eliminated. The adrenocorticotropin test[3] may also be of value in diagnosis. This test is based upon the decreased production of circulating eosinophils by stimulation of the adrenal cortex by ACTH. Four hours after injection of ACTH in normal animals the blood eosinophils decrease 50% or more due to liberation of 11-17-hydroxy compounds from the adrenal cortex. In adrenocortical insufficiency there is either no decrease, or an inadequate fall in the eosinophil count. Diagnosis may also be confirmed by noting the characteristic improvement which follows administration of desoxycorticosterone acetate.

## Treatment

Treatment of chronic cases involves the determination of the lowest doses of replacement hormones that will maintain the animal. This is done by trial, using cortisone at a level of 0.25 mg. per pound body weight twice a day, combined with desoxycorticosterone acetate at a level of 0.50 mg. per pound body weight once a day. The amount administered may be increased or decreased depending upon response of the animal. Desoxycorticosterone is a mineralocorticoid and its activity is limited to an influence on the metabolism of sodium, potassium and water. It reverses the disturbance in electrolyte metabolism in adrenocortical insufficiency through readjustment of tubular reabsorption of sodium and excretion of potassium. Cortisone is a glucocorticoid and its activity is limited mainly to an influence on carbohydrate metabolism. Other supportive treatment may be necessary as indicated by the condition of the patient.

Crisis must be treated vigorously with intravenous injections of 5% glucose in saline to which aqueous adrenal cortex extract may be added. An intramuscular injection of desoxycorticosterone acetate should be given immediately and continued daily thereafter. If the blood pressure remains excessively low, injections of epinephrine should be given. Because an animal's susceptibility to infection is greatly increased, penicillin or other antibiotic should be administered throughout the period of crisis.

## Case No. 1

A 15-month-old, spayed female, mixed Shepherd type house pet was presented to the Small Animal Clinic on October 15 1959 with a history of sudden onset o malaise, partial anorexia and inability t retain water. There was no history of previous illness. On physical examination th

animal appeared to be in fair condition and was only slightly dehydrated. The chest sounded normal on auscultation, and there was no abdominal tenderness or abnormality noted on palpation. The tonsils were slightly enlarged and there was some pharyngitis. The temperature on examination was 102.0 F. A diagnosis of pharyngitis was made and the animal sent home with an antibiotic (Cosa-signemycin) and an antiemetic (Thorazine) to be administered by the owner. The next day she was returned to the clinic because she was unable to retain any medication. At that time her temperature was 99.8 F., anorexia was complete and she was considerably depressed. She became progressively more depressed and died the next day. The white blood cell count was 10,000, the hemoglobin was 20 gm. per 100 ml. of blood and the differential blood cell count was as follows: Segs: 62, Eos: 114/1000, Monos; 3, Lymphs: 19.

On post-mortem examination there were no gross lesions except extensive atrophy of the adrenal cortices. The total weight of both adrenal glands was 0.8 gm. Microscopic examination showed no lesions in the thyroids, parathyroids, pancreas or liver. There were a few calcium spicules in the medulla of the kidney. In the pituitary gland there were a few colloid cysts and almost no acidophil granules. The left adrenal gland showed massive cortical atrophy with only one nodule of cortical cells present. The right adrenal gland showed massive cortical atrophy.

It is unfortunate that the crisis was not recognized for what it was and more complete studies made, as well as appropriate treatment instituted, before death occurred. It is conjectured that the stress of acute pharyngitis with that of handling for medication was sufficient to precipitate crisis and death.

## Case No. 2

On January 16, 1960 a five-year-old, spayed female, Cocker Spaniel was presented to the Small Animal Clinic with a vague history of malaise, partial anorexia, frequent attempts to vomit, and apparent difficulty or pain in swallowing. The owner thought there was an increased desire for water. On physical examination the animal appeared to be in good physical condition. No dehydration, weight loss or asthenia was noted. The throat was inflamed and the tonsils were slightly enlarged. The temperature was 101 F. Up to this point, this is a common syndrome in this area at this time of year so the animal was sent home with an antibiotic and an antiemetic for the owner to administer. For three days she appeared to do well, then she refused all food, began to vomit, and her stool was quite soft. On examination she appeared normal; however, she was hospitalized for observation. On palpation there was some abdominal pain and there was evidence of bloody diarrhea. A blood transfusion was given in an attempt to combat circulatory collapse, but the condition became worse and the animal died before more effective treatment could be instituted. In spite of the similarity of this case with case no. 1, and our awareness of the syndrome, adrenal cortical failure was not suspected in time to check serum electrolyte levels or perform other confirmatory tests. The white blood cell count was 14,750, the hemoglobin was 19 gm. per 100 ml. of blood, and the B.U.N. was greater than 180 mg. per 100 ml. of blood. The differential blood cell count was as follows: Segs: 57, Bands: 15, Eos: 74/1000, Monos: 10, Lymphs: 15. The specific gravity of the urine was 1.025 and the pH 5. All other urinary findings were negative.

On post-mortem examination the adrenal glands were minute, being represented by tissue with characteristic division in cortex and medulla but perhaps only one-tenth normal size. Each gland was 2 x 3 x 4 mm. in size. The pituitary gland was diffusely enlarged and somewhat reddened in color. Its size was about two times that of normal. The right parathyroid gland was enlarged three or four times; the left could not be seen. There was excessive adipose tissue over the back and abdomen. This was three-fourths to one inch thick in places.

There were no other gross lesions. Microscopic examination showed no lesions in the brain, kidneys or thyroid gland. The lungs showed areas of thickened septae with dilated capillaries and increased numbers of nuclei. The liver showed early fibrosis around the central veins, centrilobular congestion and venous distention. There was an apparent decrease in acidophil cells in the pituitary gland and sections stained with PAS stain (Periodic-Acid Schiff) showed slight degeneration of beta cells, and some pyknotic nuclei in the acidophils. The adrenal glands showed complete cortical atrophy with infiltrating lymphocytes and some plasma cells.


## Summary

Spontaneous adrenal cortical atrophy in the dog, although rare in occurrence, produces a clinical syndrome resembling in many respects Addison's disease in man. Two cases are presented with a striking similarity through history, clinical findings, gross and histopathology. This condition is probably much more common than the reports in the literature would indicate, and these cases are reported to call attention to the syndrome, since adrenocortical insufficiency must be considered in the differential diagnosis of any case of unexplained coma.


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# Small

## Management of Kerosene Poisoning

According to an article in the *Delaware M.J.* pneumonia after kerosene poisoning is due to aspiration of a relatively small amount of kerosene during or shortly after swallowing, rather than to blood-borne kerosene after absorption from the gastrointestinal tract. The risk of aspiration is particularly high because of kerosene's low surface tension, which makes a small amount spread over a large tissue surface.

Patients who have ingested kerosene should be given oxygen, antibiotics to prevent secondary bacterial pneumonia, and vegetable oil to dilute the kerosene, retard absorption into the blood, and soothe the inflamed mucous membranes of the gastrointestinal tract.

The oral toxicity of kerosene is low; consequently, induction of vomiting or gastric lavage is not necessary. Antiemetics are central nervous system depressants and are not advisable because sedation and stupor frequently are induced by ingested kerosene.

## Simple Color Test for Psoriasis

Total pentoses, free reducing substances, and desoxyribose are greatly elevated in the horny layers of patients with psoriasis and other scaling skin diseases. However, an increased free pentose content is particu-

# Animal Clinic

Here each month are published ideas suggestions and comments picked up by VM reporters

larly characteristic of psoriasis and forms the basis of the aniline phthalate spot test.

An aniline phthalate reagent is mixed with a water extract of defatted scales, and the solution is slowly heated. As the drying proceeds, a colored ring appears on the walls of the evaporating dish. A brick-red color, occasionally with a purple tint, indicates pentoses, and an olive-green or light brown color indicates hexoses. If a red color is not observed on the dish, the diagnosis of psoriasis should be rejected.

*J. Invest. Dermat. 32:437-444, 1959*

## Skeletal Problems

Hemavertebra is commonly observed in the Boston Terrier, either in the thoracic or coccygeal vertebra. Another commonly encountered condition is spina bifida which leaves a crack in the vertebra, allowing the meninges to slip out and produce central nervous system symptoms.

Congenital abnormality of the hind legs is seen in English Bulldogs, Scottish Terriers and Boston Terriers. Front legs are usually normal but hind legs are dragged. Legs are held behind the puppy like a seal's flippers. If allowed to go for six months some will learn to walk but most are better off destroyed as puppies.

Radius curvus is analogous to conditions seen in man. It is a bowing of the radius resulting from a disturbance of bone growth at the epiphyseal line. This requires osteotomy for correction. Removing a wedge-shaped piece from the radius makes possible straightening. It is usually seen as a unilateral condition. The owner usually insists that it is the result of trauma and doesn't believe it a congenital condition. The young dog's injury may play a part in stimulating premature fusion of the medial half of the distal epiphyseal line.

*J. Archibald, D.V.M.*

## Polyester Resin Bone Cement

Dog experiments indicate that the new polyester resin bone cement definitely reduces bone healing time. U. S. Naval Hospital investigators report that the material has been used satisfactorily in 50 dogs with fractures. The resin is wrapped around the fracture like a bandage. Within 15 minutes, it hardens enough to enable the dog to walk after the anesthetic has worn off. The material is slowly absorbed and in time completely replaced by healthy bone. The material has also been used successfully to transplant teeth in dogs.

## Don't Be Half Safe

Some pet stores de-scent baby skunks simply by everting the rectum and snipping off the outer or rectal orifice of the excretory duct of the scent gland. The wound thus created soon heals and contracts so that the excretory duct is sealed, and the animal is sold as a "Descented" one. Unfortunately for the purchaser the "seal" sometimes breaks from accumulating pressure from the secreting glandular tissue.

*R. R. Dykstra, D.V.M.*

## Dental Surgery

The removal of an ankylosed incisor or canine tooth when the root is strongly curved can easily result in fracture and retention of the root socket. In human dentistry, it is quite common to do a flap operation to expose the root. The patient must be anesthetized. Then a flap of the gingival tissue, including the underneath periosteum, is incised in two lines corresponding to the outline of the tooth to be removed. This leaves the tissues so incised with a hinged bottom or top so that the bone is exposed. The latter is chiseled away to the root which may then be pried loose from its socket, and the flap sutured back in place. Practitioners with experience in performing this operation insist that the flap must have a good blood supply.

*R. R. Dykstra, D.V.M.*

## Feline Nephritis

The development of micro-technics in the clinical laboratory has made it possible to conduct blood and urine examinations in the cat as has been done in the dog. Veterinarians employing these procedures are reporting a higher incidence of chronic interstitial nephritis than was believed to exist and this disease apparently is relatively as common in the old cat as it is in the old dog. It is characterized by a decreased specific gravity of the urine and an increase in the blood urea nitrogen. The clinical manifestations are severe depletion of nutrient reserves; subnormal temperature, dehydration, anorexia, anemia, vomiting and cachexia. The therapeutic approach, as with the dog, is to rehydrate, correct the electrolyte balance and reestablish kidney function as promptly as possible. The cat has a high B Complex requirement and should receive these vitamins along with the fluids. Parenteral feeding is necessary until oral alimentation can be accomplished. Technics have been described recently for intranasal intubation employing catheters. This technic can be used only when the animal can retain food and water in the stomach. The addition of small amounts of liver slurry to milk will greatly improve the nutritive value and aid in correcting the anemia. Compensated uremic cats with fixed blood urea levels can be maintained in a good state of nutrition when fed the milk-liver mixture along with Prescription Diet c/d.

*Animal Nutritional Research Service*

## Measuring Circulation Time

Fluorescein sodium seems to be a relatively nontoxic agent for use in circulation time determinations before, after, or during operation. It was reported at the meeting of the American Society of Anesthesiologists that the circulation time is the interval between intravenous injection of fluorescein sodium and the onset of luminescence in the palpebral conjuctiva exposed to ultraviolet light. The procedure may be repeated in the same patient.

## Pathogenesis of Seborrheic Dermatitis

Pathogenesis of seborrheic dermatitis may be related to sulfhydril(SH) activity. Abnormal keratinization in the skin lesions is probably due to a block in the conversion of SH groups to disulfide linkages. Irradiation produces temporary improvement by inhibiting SH group activity and accelerating the keratinization process. Sulfur, mercury, and zinc also hasten formation of keratin; the SH reactivity is probably altered by absorption of the cations onto SH-containing amino acid.

A large proportion of radiozinc is absorbed and retained in the skin. Radioactive mercury closely parallels the behavior of radioactive sulfur. Normal and eczematous skin retains only 10% of the applied isotope, while 40 to 50% is retained in seborrheic and psoriatic lesions.

*Brit. J. Dermat. 71:181-189, 1959*

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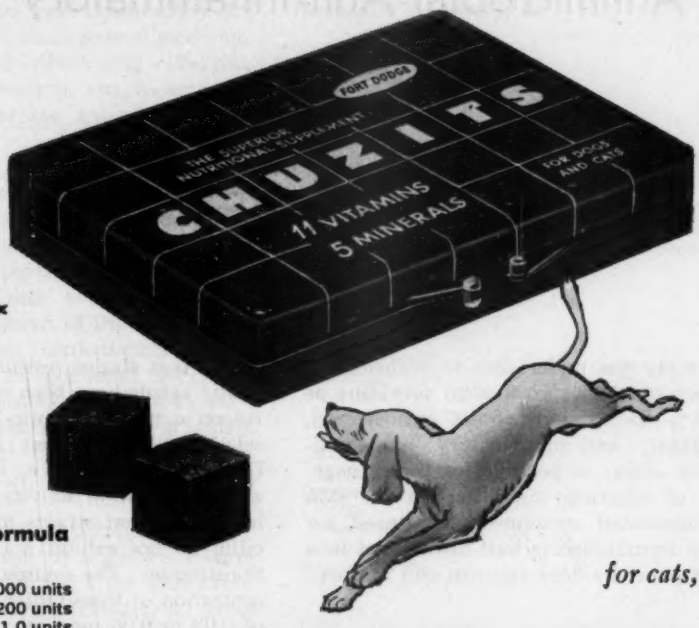


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| Pantothenic Acid | 500 mcg. |
| Choline | 6.8 mg. |
| Folic Acid | 100 mcg. |
| Vitamin $B_{12}$ | 0.2 mcg. |
| Calcium | 130 mg. |
| Phosphorus | 64 mg. |
| Iron | 1.0 mg. |
| Copper | 54 mcg. |
| Cobalt | 0.14 mcg. |
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# Clinical Experiences with a New Antimicrobial-Anti-Inflammatory Agent

A. D. RANKIN, D.V.M., M.S.
Squibb Institute of Medical Research
New Brunswick, New Jersey

A study was undertaken to evaluate the efficacy of a new preparation providing as broad a spectrum of potent antibacterial, antifungal, anti-inflammatory and anti-pruritic action as possible for the management of infectious conditions of the skin and associated structures. The need for such a formulation is well highlighted in a recent paper by Schwartzman and Mather.[1]

## Rationale

Many of the antibiotics effective against *Micrococcus* sp. (Staphylococcus) in use in veterinary medicine today have been extensively employed for a long enough period that strains resistant to usual therapeutic agents have been emerging. For this reason a new antibiotic, thiostrepton, was selected. Thiostrepton is active against Gram-positive cocci, i.e., it has virtually the same spectrum of activity as penicillin once had. Emergent strains insensitive to penicillin do not exhibit a cross resistance to thiostrepton. The minimum inhibitory concentration of thiostrepton is in the vicinity of 0.03 to 0.06 mcg./ml.; it is as potent as penicillin in *in vitro* testing. Experience *in vivo* confirms this *in vitro* potency.

Neomycin was added to the formulation to provide broad spectrum action against Gram-negative organisms such as *Pseudomonas*. Moreover, neomycin is effective

The author wishes to express his appreciation to the many veterinarians whose critical evaluation of Panolog has made possible development of this product.

against Staphylococcal infections. This antibiotic is especially valuable since the concentrations required for bactericidal action are only slightly higher than needed for bacteriostasis. This selective antimicrobial action coupled with a lack of toxicity for the skin and associated structures make neomycin particularly useful in a preparation of this type.[2]

Neither neomycin nor thiostrepton are used parenterally in small animal medicine. The possibility of developing allergies, which may later result in anaphylactic reactions or death of the animals, is completely avoided.

In recent years, the clinicians who routinely culture skin and ear infections for yeasts and molds have found an increasing incidence of secondary infection due to a variety of species, particularly *Candida* sp. (Monilia). For this reason, nystatin was made a component of the formulation to provide effective, nonirritating control of this aspect of integumental infections. Development of resistant strains to nystatin has never been a clinical problem in human medicine. Even in the laboratory, it is difficult to develop strains resistant to nystatin.

A new corticosteroid, triamcinolone acetonide, has been shown by standard laboratory tests to have 90 times the glucocorticoid activity of cortisone acetate, 40 times the anti-inflammatory activity of hydrocortisone acetate and ten times the anti-inflammatory action of prednisolone.[3] In addition, triamcinolone acetonide has a minimum of mineralocorticoid action, eliminating the risk of water and salt imbalance should the preparation be absorbed through weeping lesions or by ingestion through licking. Because of its high anti-inflammatory activity and low risk of side reactions it was added to the formulation.

The preparation was formulated and distributed as Panolog (E. R. Squibb, Div. of Olin Mathieson Chem. Co.) to over 100 clinical investigators. Case report forms were provided to assist in formalizing clinical observations. Over two-thirds of these veterinarians reported on more than 730 cases. Because terminology for the conditions treated and the evaluation of the results varied so widely, tabulation of these reports proved difficult. However, an attempt at tabulation has been made in Table I.

A group of these investigators met in Boston, presented their findings and informally discussed the results of their evaluation.[4] The essence of some of their discussion is presented.

*(continued on page 45)*

**TABLE 1**

| Clinical Condition | Response to Treatment with Panolog | | | | |
|---|---|---|---|---|---|
| | Excellent | Good | Fair | Poor-None | |
| Dermatoses, Canine | | | | | |
| Acute* | 56 | 24 | 3 | 5 | |
| Chronic | 5 | 5 | 6 | 2 | |
| Fungal | 5 | 5 | 0 | 1 | |
| Hypoestrogenic | 5 | 0 | 0 | 0 | |
| Hyperestrogenic | 2 | 0 | 0 | 0 | |
| Contact | 4 | 0 | 0 | 0 | |
| Demodectic Mange | 1 | 2 | 1 | 0 | |
| Lipfold Pyoderma | 5 | 2 | 0 | 0 | |
| Collie Nose | 3 | 0 | 0 | 0 | |
| Not categorized | 12 | 15 | 0 | 3 | |
| Dermatoses, Feline | | | | | |
| Acute | 13 | 1 | 0 | 1 | |
| Photosenitivity | 0 | 2 | 0 | 0 | |
| Nonspecific | 6 | 0 | 0 | 0 | |
| Infected Wounds | | | | | |
| Canine | 9 | 5 | 0 | 0 | |
| Feline | 1 | 0 | 0 | 0 | |
| Otitis Externa, Canine | | | | | |
| Acute | 121 | 34 | 11 | 2 | |
| Chronic | 75 | 67 | 12 | 11 | |
| Not categorized | 26 | 25 | 3 | 3 | |
| Otitis Externa, Feline | 3 | 1 | 0 | 0 | |
| Anal Sac Infections | | | | | |
| Acute | 53 | 11 | 1 | 0 | |
| Chronic | 7 | 13 | 0 | 2 | |
| Interdigital Cysts | 13 | 0 | 0 | 0 | |
| Abscesses | | | | | |
| Canine | 2 | 1 | 0 | 1 | |
| Feline | 0 | 0 | 0 | 1 | |
| Vulvitis and Vaginitis | 3 | 1 | 0 | 0 | |
| Balanitis | 0 | 3 | 0 | 0 | |
| Conjunctivitis | 2 | 6 | 1 | 0 | |
| Keratitis | 5 | 2 | 0 | 0 | |
| Avulsion | 1 | 0 | 0 | 0 | |
| Total Cases | 438 | 225 | 38 | 32 | 733 |
| % of Cases | 60% | 31% | 5% | 4% | 100% |

*includes moist eczema, hot spots, pyoderma.

Wherever possible reports were consolidated to fit under one classification, but since this was not always possible Table I may contain some classifications which seem redundant.

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*Weberlein, M.K., et al.: J.A.V.M.A. *134*:518-519 (June 1) 1959.

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*(continued from page 43)*

## Observations

Rapid anti-inflammatory action brings under control inflammation and the associated pruritis. This reduces, or eliminates altogether, the urge of most animals to continue self-inflicted trauma. Once affected tissue is relieved of continuous insult, the antimicrobial constituents can effectively control the infection. While cultures are made to identify the invading organisms and their special drug sensitivities, Panolog treatment on a broad front can be initiated advantageously.

It should be stressed that in many cases of dermatitis the skin is simply reflecting an internal disturbance. While the apparent lesions are alleviated by topical treatment, such conditions as hypocorticoidism, hypogonadism, hypergonadism, hypothyroidism, or diabetes should be treated with appropriate hormonal therapy to restore the proper balance. Where the primary cause of otitis is a foreign body, such as a grass awn or ear mite, it should be eliminated and treatment initiated for prompt control of inflammation and infection.

One-third of the cases represented in the poor to negative response category are cases of chronic otitis which ranged up to eight years duration. The ear canal was nearly obliterated with proliferating tissue in some of the cases described. These were frankly beyond hope of cure by nonsurgical therapy.

In over 730 cases reported, only one case of a dermatological side reaction was reported. A cat developed erythema at the site of application only. The erythema disappeared upon withholding of the drug.

## Dosage

The Panolog dosage used varied greatly with investigators. It appears that in dermatological disorders a very thin film spread twice a day over the affected area is usually adequate. As healing progresses, frequency of administration can be reduced appropriately.

Otitis responded to injections of three to eight drops into the ear canal from once daily to three times daily, followed by massage of the side of the head to get good spreading. As clinical improvement was noted the frequency of treatment was reduced to once every three or four days. It is important to continue treatment past the point of apparent clinical recovery. Recoveries from chronic otitis of four to six years' duration have been reported.

Anal sacs have been treated by injection of the sac with Panolog allowing it to remain for periods varying from one hour to 24 hours and then emptying the sac. This is followed by reinjection until the sac contents, when expressed, are clean. The sac is then filled with Panolog. Chronic cases may require several courses of treatment.

Abscesses and infected wounds are filled with Panolog and retreated as necessary. Eschenroeder[4] reported a case of a long-standing fistulous tract, developing following an open reduction of a fracture, which was resistant to all other forms of therapy. The bone healed satisfactorily but a draining fistulous tract developed. Radiological evaluation revealed that it was not osteomyelitis. The tract was treated unsuccessfully by injection of antibiotics and by systemic antibiotics.

Under general anesthesia the area was opened and the affected tissues cleaned by debridement. The entire area healed apparently satisfactorily but after a short time broke down and started draining again. In desperation, Panolog was infused into the tract after flushing it out. Following several treatments the tracts healed uneventfully.

Interdigital cysts were treated by incising the cyst and removing the contents by curettement. Then the pocket was packed with Panolog twice daily. The duration of treatment never exceeded 16 days and there has been no recurrence of the cysts.

Panolog is not considered a cure for demodectic mange or dermatoses of gonadic origin. It was applied to give the animal prompt relief from the secondary "pyotraumatic" infection while treatment of the

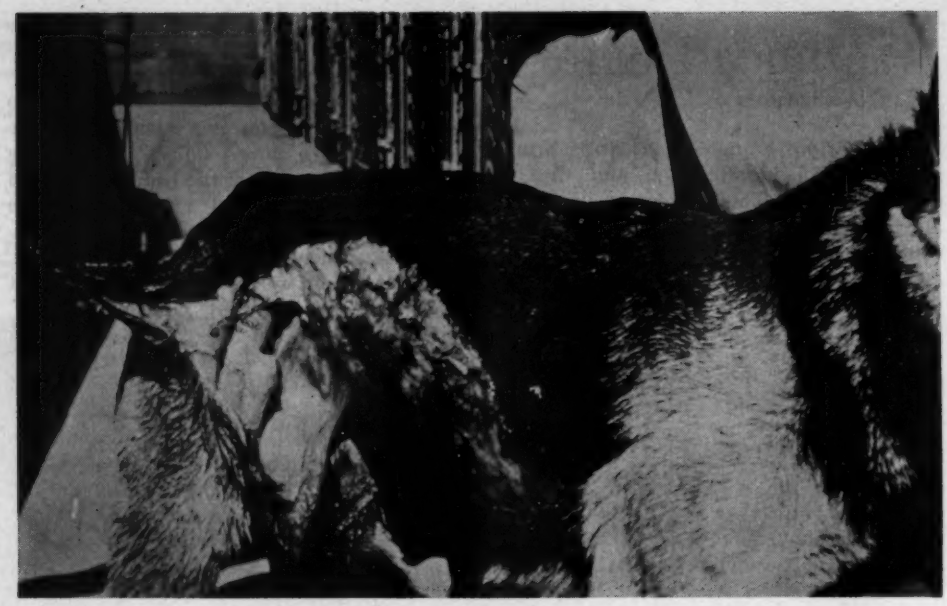

*Figure 1: Extensive and severe laceration of the right side in a German Shepherd.*

*Figure 2: Four months after treatment of wound with Panolog.*

primary cause of the condition was initiated.

The case of avulsion of the skin on the right side of a three-year-old German Shepherd, reported by Parizo,[4] warrants discussion. The dog was presented at the hospital with a laceration which had torn the skin from her side from the elbow and xiphoid cartilage back to the inguinal region and sacrum (Figure 1). The right side was exposed back to the muscles of the thigh. Two thigh muscles were severed. After giving the client an unfavorable prognosis, the practitioner attempted to repair the damage. Since some devitalized skin had to be removed, there was a triangular area (seven inches on each side) exposed. To hold down infection on this surface, Panolog was applied three times daily for two weeks. At that time the exposed tissue was shiny, dry and had the appearance of thick flexible plastic. When seen four months later the area was dark brown and had a leathery appearance. Complete recovery of the dog was reported (Figure 2).

## Prophylaxis

In addition to the specific conditions cited in Table I, reports were received on the prophylactic use of Panolog in accidental clipper burn. The inflammation was quickly reduced and infection of hair roots was avoided. It was also used to pack cavities following surgical removal of anal glands. One clinician used it prophylactically following excision of an eyelid tumor. The preparation prevented postoperative swelling and possible infection from self-inflicted trauma. Panolog has been recommended for use where hair has been plucked from the ear canal to allow better ventilation.

Rapid alleviation of inflammation is very apparent to the user. This results in a marked reduction in distress of their pets. Antibacterial components quickly eliminate the source of odors, a point favorably commented on by the clients. The light ointment base quickly softens encrustations and reaches the site of infection. It also penetrates the skin and does not leave a greasy surface.

## Summary

A new preparation, Panolog, for topical treatment of many conditions affecting the integument and associated structures of small animals, is described.

While it is not a cure-all, Panolog has exhibited marked effectiveness in a wide range of clinical conditions frequently presented to the veterinarian.

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## Contrast Media

There are some substances that are not sufficiently opaque to stop *x*-rays, and therefore these substances, usually in the nature of foreign bodies in the digestive or intestinal tracts, do not show up clearly or at best very indistinctly when diagnostic *x*-ray exposures are made. This group of materials includes wood, sponge rubber, cloth, either cotton or wool, or mixtures, glass, etc. Uric acid calculi are among the substances that may be entirely missed by this type of examination. Such *x*-ray opaque substances as barium solutions or iodine are in some instances helpful in detecting substances that in themselves are not sufficiently opaque to be delineated by *x*-ray. Some expert *x*-ray operators make the outlines of such organs as the uterus and liver, and pulmonary lobes more distinct to *x*-ray by the injection of a small amount of air into the peritoneal cavity. The air appears as a dark line around the organs. The air in the chest cavity following a crushing or other injury is sometimes helpful diagnostically.

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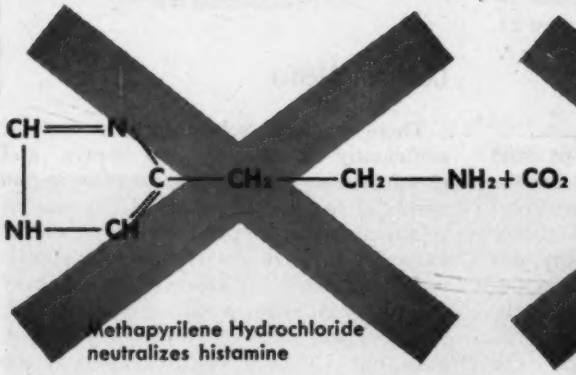


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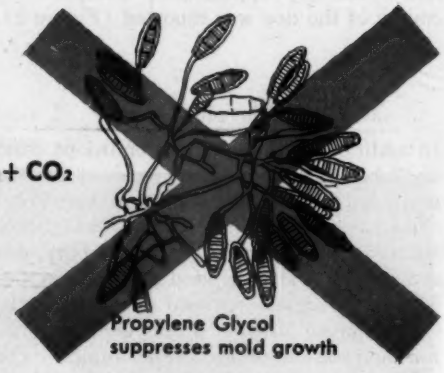

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# Use of Griseofulvin in the Treatment of Ringworm

E. F. DONOVAN, D.V.M., E. H. BOHL, D.V.M., Ph.D.
Ohio State University
Columbus, Ohio

An antifungal antibiotic, griseofulvin,* which is given orally, has produced excellent results in curing ringworm in animals and man.[1,4,7] This is a report on the use of this antibiotic in treating 55 cases of ringworm in dogs and cats at the Veterinary Clinic of the Ohio State University.**

Up to now, topical preparations have usually suppressed the infection only temporarily, especially in catteries and kennels. Interest in finding a cure for ringworm in animals springs not only from the desire to improve their health and appearance, but also from an awareness of public health considerations. This is because men and women — and especially children — often contract the disease from animals.

Griseofulvin is a metabolic product from the growth of various species of *Penicillium*, among which is *P. griseofulvin*.[2] The probable reason why griseofulvin cures ringworm can be explained as follows:

1. Ringworm fungi usually affect only the keratinized cells of the body: skin, nails, and hair.
2. Griseofulvin alters the keratin so that growth of the fungi is inhibited.

To explain this action further: The antibiotic is absorbed from the gastrointestinal tract, and is carried by the circulatory system to the newly keratinized cells of the skin, hair, and nails where it is deposited.[5,6] As these structures grow, the antibiotic moves distally also, at the same slow rate. Gradually, through the natural process of desquamation of keratinized cells, the host rids itself of the fungus infection.

The fungi that commonly cause ringworm infections are *Microsporum canis, Trichophyton mentagrophytes,* and *Trychophyton verrucosum.* Griseofulvin has been shown to be effective against all of these.[4,5] However, *in vitro* tests indicate that is is not effective against bacteria, actinomycetes, or yeasts.[3,5]

During a five-month period, 47 cats and eight dogs were diagnosed at the Veterinary Clinic as having cutaneous fungus infections. Four of the dogs and nine of the cats were owned by individual clients. The other four dogs were from one kennel, and the rest of the cats were divided among three catteries. The dogs ranged in age from four months to two years, and the cats from two months to 13 years.

## Diagnosis

The animals were all given physical examinations on admittance, and the type and distribution of skin lesions were recorded. All the dogs showed round, circumscribed areas of alopecia with hyperkeratinization.

*The drug is commercially available by McNeil Laboratories, Philadelphia, Pa., under the trade name, FUNGIFUGE — Veterinary, and as FULVICIN by the Schering Corporation, Bloomfield, New Jersey.

**The Ohio State University study was supported by Johnson & Johnson, New Brunswick, New Jersey.

Presented at the 76th annual meeting of the O.S.V.M.A., Columbus, Ohio, Jan. 31-Feb. 1, 2, 3, 1960.

*Figure 2. Microscopic examination of suspicious hairs was made.*

There was an area of irritation at the periphery of the lesion.

The cats demonstrated three basic types of lesions:

1. Small areas of scaliness with only partial hair loss (Fig. 1). The hairs that remained on the lesion were brittle and would break off easily. Most cats showed this type of lesion.

2. Round, circumscribed areas of alopecia with hyperkeratinization, similar to the dog lesions. However, there was no irritation at the periphery. Only a few cats showed these lesions.

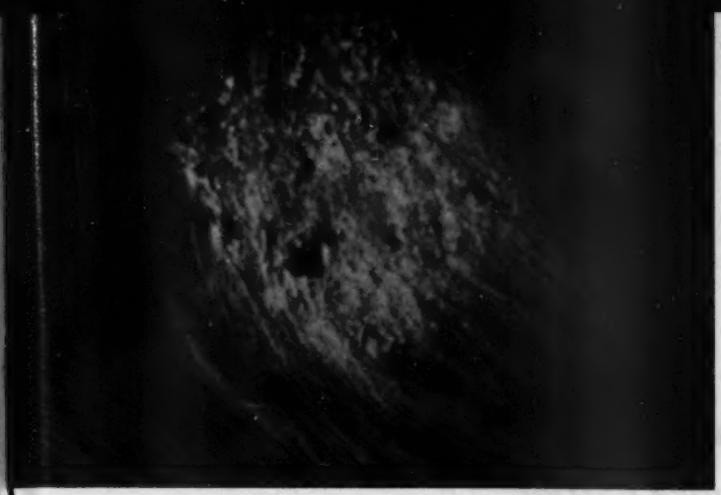
3. No lesions at all. But fluorescing hairs were found with a Wood's light. Six cats showed this condition, and all were from infected catteries. They may have been early cases.

*Figure 1. Typical cat lesion.*

All animals were examined with a Wood's light, and fluorescing hairs were removed for culturing. If no fluorescence was found, hairs were removed from the periphery of suspicious areas for culturing. In several cases fluorescence was detected on the hair roots, even though the hair had not fluoresced.

On all the animals, suspicious hairs were examined microscopically (Fig. 2). They were prepared with a 10% solution of potassium hydroxide. Fungus cultures were completed on every case, and Mycosel agar slants (Baltimore Biological Company, Baltimore, Md.) were used in the isolation of fungi from hairs. Only animals from which fungi were cultured are included in this study.

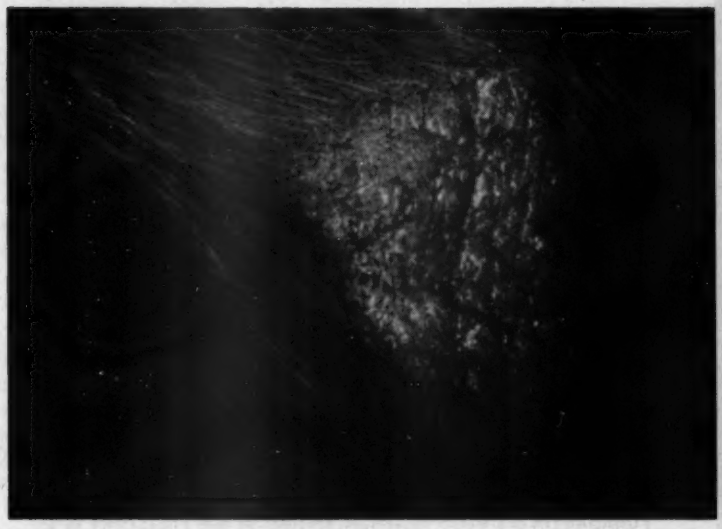
Results of fungus cultures prior to treatment, showed 54 animals positive for *Microsporum canis*, and one for a *Scopulariopsis* species. Of these 54 *M. canis* cases, only

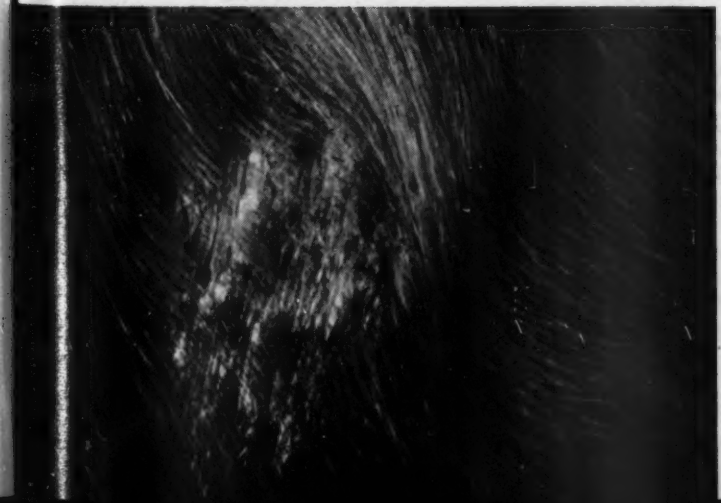


## Response to Griseofulvin Therapy

*Puppy 10 weeks old Pre-Treatment.*

*Eight days after treatment was initiated.*





*18 days after treatment was initiated.*

*(continued on page 53)*

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*(continued from page 51)*

32 had been positive under a Wood's light, and direct microscopic examination showed only 30 positives.

## Treatment

Griseofulvin was given once daily to dogs and cats at the rate of 25-30 mg. per pound of body weight. Tablets were concealed in the animals' food.

Treatment was continued daily for 11 to 21 days, depending on the severity of each animal's condition. Two cats were an exception, and they will be discussed later.

All animals were bathed at the conclusion of treatment, using an antifungal preparation. Vangard 45 (R. T. Vanderbilt Co., Inc., New York, N. Y.) gave the best results for the bath. A solution was made using 1½ tablespoonfuls per gallon of water. This solution was rubbed into the hair, and the animals were allowed to drip dry.

## Results

At the conclusion of griseofulvin treatment and the bath, all animals were checked for:

1. Fluorescence under the Wood's light.
2. Presence of spores on hairs as viewed microscopically, using KOH.
3. Growth on culture media.

Clinical recovery was based on loss of scaliness, disappearance of fluorescence at the base of hairs, and in cases where alopecia was present, the beginning of new hair growth. Clinical recovery occurred in all of the animals during the normal course of treatment except in the two cats previously mentioned.

In dogs, after seven to ten days of griseofulvin therapy, irritation at the periphery of lesions had mostly disappeared, and the scaliness had started to drop off. At 14-15 days of treatment, all of the scaliness was gone, and a few new hairs were observed.

In cats, the scaliness did not start to disappear until about the tenth day of treatment, but new hairs were seen as early as 14 days.

The following two tables show the results of fluorescence, direct microscopic, and cultural examinations before and after treatment:

**TABLE 1**

| CATS | Fluor+ | Fluor— | KOH+ | KOH— | Cult+ | Cult— |
|---|---|---|---|---|---|---|
| Pre-treatment | 32 | 15 | 30 | 17 | 47 | 0 |
| Post-treatment | 22 | 25 | 19 | 28 | 38 | 9 |

**TABLE 2**

| DOGS | Fluor+ | Fluor— | KOH+ | KOH— | Cult+ | Cult— |
|---|---|---|---|---|---|---|
| Pre-treatment | 0 | 8 | 0 | 8 | 8 | 0 |
| Post-treatment | 0 | 8 | 0 | 8 | 0 | 8 |

Many of the long-haired cats showed some fluorescence at the end of treatment. But it was confined to a few small areas, and just on the tips of the hairs. These animals did not become reinfected. Fifteen of the cats were checked with a Wood's light one month after treatment and were negative for fluorescence.

During the course of treatment, no clinical signs of toxicity were noticed in any of the animals. They remained perfectly normal; in fact, the physical condition of all the animals markedly improved. They became more active, showed an increase in appetite, started to put on some weight, and their unaffected hair became healthier in appearance.

All owners have been contacted at various times after taking their animals home. Reinfection has occurred in only one cattery. It is a known fact that the owner had taken in new cats that were infected with ringworm.

The two cases that varied in response were 12-week-old, severely infected Persian kittens. They failed to respond after 35 days of treatment. At this time, their dosage was increased to 50 mg. per pound for an additional 21 days. At the end of this time the animals appeared clinically normal. We observed these animals for one

**Vangard 45 is available from the R. T. Vanderbilt Co., Inc., New York, N. Y.

*Boston Terrier prior to ringworm treatment.*

month following treatment, and no reinfection was evident. The kittens showed a blood dyscrasia about the 50th day of treatment. This was characterized by a leukocytosis, with an absolute increase in lymphocytes.

One month following the end of treatment on these kittens, the blood picture returned to normal. These animals will be rechecked for the next six months. At no time during the treatment period did they show any signs of clinical illness. However, two littermates to these kittens died from feline panleukopenia early in the course of this experiment.

## Discussion

The results of our clinical study of griseofulvin in treating ringworm in dogs and cats bear out some of the findings that have been reported in other clinical and laboratory studies.[4,7]

Dogs responded to the drug more quickly than cats. All dogs were clinically healed as well as culturally negative at the end of 14 to 15 days of treatment. Severely infected cats may require three weeks or longer for clinical recovery. However, in most cases two weeks of griseofulvin therapy proved to be adequate for clinical recovery. Recently infected animals responded sooner to medication than did animals that had been infected for several months or longer.

The absence of fluorescence, and negative KOH examinations of the infected dogs (Table II) should not be considered typical, since several dogs examined in the clinic have been found positive by both of these methods, as well as by culture. Nonfluorescent *M. canis* scalp infections have also been reported in man.[8] Of the three methods used in the diagnosis of ringworm, the cultural method was the most reliable.

One shortcoming of treatment with griseofulvin is that, although the animals make splendid clinical recoveries, viable fungi may persist on the hairs, as has been previously reported by Kaplan and Ajello.[7] Thus, it is possible that such animals may transmit the disease to other animals and to man. This would be especially true of long-haired cats.

In the attempt to circumvent this shortcoming of the drug, three steps were taken:

1. Long-haired cats were clipped after ten days of treatment. Depending on the extent of lesions or the amount of fluorescence, they were clipped entirely, or just at the area of the lesion. The idea was that the terminal portion of the hairs, still infected, would be removed, and the short hairs that remained should contain inhibitory levels of griseofulvin.

2. The course of treatment was extended to allow more time for the griseofulvin to move out on the hairs.

3. All animals were bathed in an anti-

*Same dog following medication.*

fungal solution at the end of treatment.

A daily dosage of 25-30 mg. per pound of body weight appears adequate in both dogs and cats.

The prophylactic action of griseofulvin was demonstrated in this study by the fact that no new lesions developed on any of the animals during treatment.

Griseofulvin appears to be safe for use in both dogs and cats. No animal exhibited any signs of toxicity during the normal course of treatment. Two kittens developed a blood dyscrasia while being treated on double the normal dosage for a prolonged period of time. Neither showed clinical signs of illness, however.

## Summary


1. Griseofulvin proved effective in treating dogs and cats spontaneously infected with ringworm *(Microsporum canis)*.

2. Clinical response was excellent, but viable fungi persisted on the hairs for variable periods.

3. No harmful side effects were observed during the normal course of treatment. Two kittens showed blood dyscrasias after prolonged treatment at high levels, but they showed no clinical signs of illness.

4. It is recommended that animals be bathed with a suitable antifungal solution following treatment. In this study, a product containing 45% Captan was found to be the most effective bathing agent.

5. In long-haired cats, best results were obtained by clipping the lesion areas, preferably after ten days of treatment.

6. A daily dosage of 25-30 mg. per pound of body weight seems to be adequate.

7. At least a 14-day treatment period is required in most cases. Severe cases may require longer.

8. Recently infected animals respond more quickly than animals that have been infected for a long time.

9. Griseofulvin was given to dogs by putting it in their regular ration. For cats, it was concealed in tuna fish.


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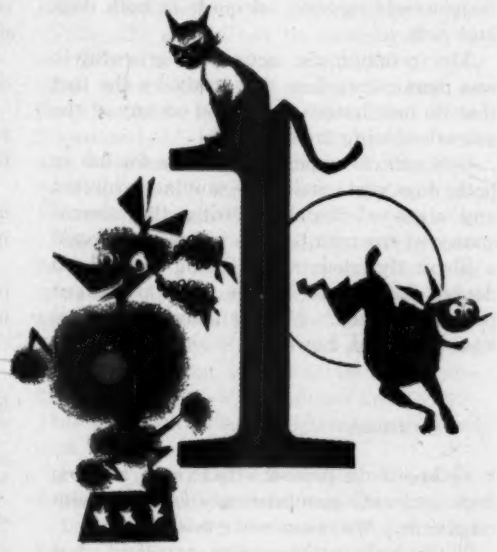

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EMIL F. KUHN, D.V.M.
Florissant, Missouri

On May 16, 1959, a five-year-old male Cocker Spaniel was admitted to the hospital. The owner said she wasn't sure the dog was very sick but he hadn't been himself for a few days and she thought he should be examined. Except for a urine specimen, which was taken at the hospital, the dog appeared to be normal. The urine, on gross examination, was cloudy and showed tissue debris. The specific gravity was high, pH 8, and the albumin was over 1000 mg. Microscopic examination of centrifuged sediment showed considerable cellular debris, but it was negative for indications of calculi. Palpation failed to reveal calculi. A diagnosis of cystitis was made and the urine was cultured.

## Technic

A microbial sensitivity test kit was used. However, to get a fuller coverage of antibiotic sensitivity, additional discs were used along with the ring of discs that comes with the kit. Discs of Furadantin, neomycin and Daribiotic (Massengill) were added to the blood agar plate. A check on Polymyxin B in this case was considered desirable. However, Polymyxin B discs were not in the hospital stock at the time, so by selecting the Daribiotic and neomycin disc, an effort was made to get a fair evaluation of polymyxin sensitivity. After 48 hours of incubation, it was obvious that the organism was very resistant. The only inhibition was by Daribiotic. Since the organism grew in the presence of neomycin and not in the presence of Daribiotic it was assumed that the organism was polymyxin B sensitive. The organism was isolated and identified as Pseudomonas. With a diagnosis of pseudomonas cystitis with polymyxin B sensitivity, treatment was started.

The dog received 1 cc. of Daribiotic I.M. daily for seven days. No other medication was used. Ten days after the start of treatment efforts were made to reculture urine samples. The organism could not be found; all cultures, were negative. No further

treatment was given and to date the Cocker has been normal.

This is but one of many cases where sensitivity testing has been an invaluable aid for diagnosis and treatment. All cases are not as dramatic but the value of culturing is still there. In early 1959 cultures of a chronic nasal discharge showed little or no sensitivity to any antibiotics or chemotherapeutic agents. A diagnosis of a resistant sinus and upper respiratory infection was made. In this case the answer was not found through culturing, but it was an aid in arriving at a prognosis. The prognosis was substantiated by the fact that after almost a year of continuous varied therapy, the dog still has a slight intermittent purulent nasal discharge.

The culture and sensitivity testing of stools of persistent diarrhea have led to successful treatment in many difficult-to-treat cases. The rectal area is cleaned and the anal sphincter is dilated with a nasal speculum. A sterile cotton swab is used to obtain the sample from the wall of the bowel. This sample can be placed in culture broth or streaked directly to a culture plate. I have had good success by just streaking a plate with the swab, applying sensitivity discs and incubating. In many persistent diarrheas, sensitivity to chloromycetin and neomycin is observed. This is particularly true in dogs. Cats with violent fluid type diarrheas are in many cases found to harbor organisms sensitive to the nitrofurans, (Furadantin and/or Furadex—Eaton). After running a large number of cultures one must resist the temptation to skip cultures and select drugs based on previous experience in a certain type of case. You will do this only a few times, become sorry for your carelessness and quickly return to culturing.

Culture of otitis cases is a problem due to contamination in getting inoculum from the ear canal. A procedure I use at this time has provided satisfactory cultures with a minimum of contamination. The patient is given morphine or a tranquilizer. After effect of the injection, the external portion of the ear canal is cleaned with an antiseptic soap and water, being careful not to run the cleaning solution into the ear canal. A sterile otoscope cone (small size) is inserted to the base of the ear canal. A small sterile cotton swab is inserted into the cone and the inoculum is taken from the base of the ear canal. The cone offers some protection from contamination from the external portions of the ear canal and usable cultures can be obtained in this manner. I have not observed a sensitivity pattern in resistant infections as is seen in diarrhea cases. Of course, in culturing ears, as in any other pathological condition, the cause may be other than the bacteria growing on the plate. They may only be secondary to a monilia infection, seborrhea, mites, poor air circulation, foreign body, etc. These things do not eliminate the value of culture work if they are considered in the original diagnosis. Where examination, culturing and treatment do not provide the answer to the problem, surgery usually will.

## Sensitivity Test

In culturing on a limited basis the Microbial Sensitivity Test Kits are quite adequate. Where a good number of cultures are run on varied types of infections I feel the Baltimore Biological Labs. Sensi-Disc Dispenser gives a little more versatility. With the dispenser a tremendous number of antimicrobial discs with varying drug concentrations can be selected. Low to mid range concentrations seem to be of most value. Dispensers can be set up for general use, for use in culturing urine and one for enteric cases. The general dispenser can carry a variety of antibiotics. The one for urine culture can be equipped with the drugs most used in urinary infections, i.e., Gantrisin, streptomycin, Furadantin, etc. The dispenser for diarrhea cases could be stocked with the enteric sulfas, neomycin, Furacin, Furadantin, chloromycetin. Sensitivity testing is inexpensive and provides the practitioner with a foundation for selecting specific therapy in any given case.

The fundamentals of microbial sensitivity testing were covered in the March 1960 issue of VETERINARY MEDICINE by Lewis B. Huff, D.V.M., Covina, California.

*Emergency Resuscitation Kit*

# Surgical Procedures for the Routine Small Animal Practice

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The basic surgical problem in routine small animal practice is to draw the line between practicality and perfection so that the highest standards of each may be achieved. To do this the veterinarian must be *careful and quick,* as well as clean, confident, and considerate.

By *careful* I mean using proper precautions in inducing anesthesia, having trachea tubes, oxygen and a resuscitation kit handy, and training yourself and your assistants in an anesthetic emergency plan. Speed in obtaining a patent airway is of the essence. Forced breathing can be quickly established with a "T" tube and oxygen. Metrazol has been found to be useful in reestablishing voluntary respiration. Adrenalin directly in the heart will frequently start up the beat if cardiac failure occurs. If this fails, open the chest and massage the heart. This, coupled with continued forced respiration, will sometimes save the dog. Caution in the choice of anesthetic agents should be exercised and undue struggling avoided.

By *quick* I mean purposeful and direct action. By not wasting time trauma from exposure and the chance of introducing infection are minimized. The economics of practice make proper use of time essential.

Despite all of the propaganda to the effect that the spay is a simple easy operation, they can be difficult.

Many older and larger dogs are brought to our clinic, so we get some less than ideal specimens, especially the obese ones and the giant breeds. Two very helpful procedures we have found is to become skilled

in the use of the oophorectomy hook, and to bring the ovary to the surface by breaking the ovarian ligament. Three hemostats are placed beneath the ovary. The tissue between the one nearest the ovary and its neighbor is torn away by a twist and slide motion. A ligature is placed beneath the two hemostats left on the stump. A second ligature is placed in the groove left when it is removed by the hemostat nearest the body. I have found that this tissue can be friable enough to be cut through by this hemostat, making the first tie very worthwhile. If an ovary or blood vessel is lost, our instructions are to open the abdomen with a wide incision, pack off the viscera in the vicinity of the pole of the kidney and mop, search and find. A long abdominal incision is better than a sleepless night or an unfortunate occurrence to explain.

Of the problems associated with spaying, wound dehiscence is an occasional occurrence. This is usually traceable to bleeding, excessive trauma to the wound edges, allergy to catgut, incorrect closure, excessive activity on the part of the dog, and rarely, infection. Although we routinely bandage our patients, if wound disruption is going to occur, it does so in spite of the bandage. However, the dressing will often prevent massive eventration with the prospect of chewed and contaminated intestines. Immediate wound debridement and use of braided stainless steel wire has been our method of treatment.

We do a complete panhysterectomy since seeing a perplexing case where a spayed female had an unexplainable infection. Only the ovaries had been removed and an infection had established itself in the horns and body. This was found and removed at laparotomy and recovery was rapid.

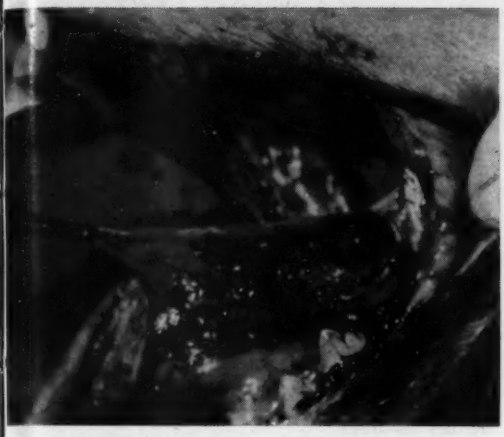
Uterine anomalies are sometimes seen. I had a cat last year with no adrenal, kidney, ovary or horn on the right side. I had to make a thorough search to convince myself. The occurrence of estrual symptoms, or at least the attraction of males after spaying, is an annoying complication of vaginitis, vulvitis, or cystitis, and we recently had a renal and cystic infection with this as the presenting complaint.

Once in a while, a clot of blood is passed several days after surgery. I presume this is from bleeding at the stump. No harm is done but the client is upset.

A dog with heat symptoms spayed by someone else presents a delicate situation. If there is a cyclic occurrence we do a laparotomy. A search at the posterior poles of the kidneys has revealed ovaries or ovarian tissue in these cases. Another condition referable to spaying is adhesions of the stump to the bladder, resulting in urinary frequency and discomfort. A reaction to ligature material resulting in sinuses of the flank or damage to a ureter resulting in hydronephrosis is seen. Treatment is carried out by laparotomy and removal of the offending ligature and surrounding scar tissue, or nephrectomy as indicated. This is why we use only plain catgut for ligature material.

## Soft Palate Resection

Among the difficulties associated with the brachycephalic dog is the overlong redundant soft palate. Resection offers immediate and gratifying relief and is to be recommended. I have in mind a poor little Pug that had snorted, snored, gagged and generally undergone partial strangulation until it was ten years old. It was presented for fainting spells, vomiting, and stertorous breathing. Any attempt to examine the dog resulted in such labored inspiration as to make one expect it would promptly die on the table. With oxygen, tracheal tube, and resuscitative equipment ready, the dog was anesthetized. A very long and very thick soft palate was found extending deeply into the larynx. It was pulled out with forceps. Respiration promptly began and the color returned to normal. Anesthesia (Surital) was continued and the excess tissue cut off. This can be done with a tonsil snare, scissors and hemostats, or free hand. I used two curved hemostats and long handled scissors. The length of the soft palate was left so as to just touch the epiglottis. A really huge piece of thick tissue was removed. Some interrupted catgut sutures



*Left: Ranula incised and cauterized.*

*Below: Canine with tumor in the pharynx and soft palate.*

*Bottom: Feline with rodent ulcer and palate involvement.*

were placed. The tracheal tube was left in until consciousness returned. The next day that dog was a changed animal. It could breathe well for the first time in its life. I swear it smiled at me when it left the hospital.

## Oral Dental Surgery

Most of the procedures involving the mouth are apt to be considered as minor surgery and to be somewhat neglected. There are, however, several procedures which warrant our attention. In the course of scaling tartar from the teeth we often find a loose one which is readily extracted. Occasionally a carnassial or canine is dead or has an infected root, but is quite solidly ensconced in its socket. The carnassial tooth is best split and then removed in two parts because of the three divergent roots. I like to stress the value of the dental elevator. A properly loosened tooth can be withdrawn with forceps and reasonable traction without danger of crushing the tooth or leaving a root fragment behind.

For removal of the canine I prefer a small bone chisel and a hammer. You may be called upon to do this for some of the larger cats that are kept as pets, such as the ocelot. Their teeth are large but thin-walled and brittle, and have a very large pulp cavity.

*Successful operation on Boxer with carcinoma of the lower jaw.*

It is possible to remove the canine intact by cutting the lateral well back and loosening the tooth medially with small cuts of the chisel. This is much easier than trying to use the elevator.

A variety of growths affect the gums. Epuli, especially prevalent in Boxers, are usually removed with the electro-cautery. These must be differentiated from true tumors. Some are operable; others are not.

When removing a tumor of the gums or jaw it is best to remove the tooth ahead and behind the growth. The healthy gum is reflected and the small chisel and hammer come into play. Those bleeders which ooze or spurt directly from the bone are stopped by making a number of small chisel cuts over them at various points of the compass.

After the growth has been removed and you are satisfied that only healthy bone remains, the gums are sewn over the area with fairly heavy silk interrupted sutures. With antibiotics, healing is usually rapid and satisfactory.

The common sight of retained deciduous teeth in the toy breeds is a hereditary defect. These teeth have from little to extensive roots but are easily removed. Failure to do so can result in injury or malpositioning of the permanent teeth. The canines seem most affected, but dogs with two sets of incisors are seen.

Requests for repair of harelip in Boston terriers and others arise. It can be done if there is no serious involvement of the hard palate. Certainly newborn pups affected so as to be unable to nurse should be destroyed. No animals showing this defect should be bred, a fact accepted by all except the breeders. That this defect is not too unusual is seen by the number of articles in the literature,[2,3,5] including two references to surgical repair which may be of interest.[2,5] An interesting remark in Setty's article[5] is that in animals the occurrence is on the left side, the same side that this anomaly usually occurs in man.

An unusual and surprising defect in dentition is seen in monkeys, usually Woollies. Two large lumps appear on the face under the eyes. The deciduous teeth are either gone or loose, but no regularity in replacement with permanent teeth is seen. An *x*-ray will show the permanent teeth to be in wild disarray. The masses under the eyes are not abscesses, which is the owner's diagnosis, but misplaced canine teeth. Surgery is not recommended, as these animals do not do well without teeth, and are usually in such a poor state of nutrition that anesthesia is a great risk. Euthanasia is recommended.

*Canine Tooth Removal.*

Dr. Albrecht in Denver, Colo., has described a method of moving malpositioned teeth in Dachshunds so that a more correct bite can be achieved. The viability of the tooth is maintained. Such teeth are usually ground off or extracted, especially where they cut into the palate, as in prognathous dogs (à la Andy Gump).

Absence of one side of the soft palate is sometimes curable surgically if enough tissue is present. The edges are trimmed and suturing with silk sutures is done. Symptoms of nasal congestion, chronic sinusitis and dysphagia, all from fluid and food going up the posterior nares, will go away. A really very short soft palate will work, it seems.

*Canine Carnassial Tooth Removal.*

## Fractures and Dislocations

Luxation of the temporo-mandibular articulation is certainly not common in the dog, but is seen occasionally in the cat. If no fracture is present, the old technic of closing the jaw with a pencil crosswise in the back of the mouth is effective.

Fractures involving the jaw are very common. Fracture of the mandibular symphysis in both dogs and cats is a frequent problem. The cat responds nicely to a figure of eight with stainless steel wire around the lower canines. When these are missing, broken, or the angle is such that good contact cannot be maintained, transfixion with a fine pin can be used. Placing a stainless steel stitch through the bone is easy and works well. The stitch is placed in a sterile manner, the skin is closed and the wire need not be removed. In larger dogs, wiring and transfixion can be combined.

By properly debriding and treating with antibiotics, healing will take place quickly if immobilization can be achieved. Unilateral fracture of the mandible can be immobilized by wiring the fragments together. Bilateral fractures should be immobilized by transfixion with an intramedullary pin. Dr. Gordon C. Knight of London, England, felt that this was most important. External fixation, such as a small-sized Stader or Kirschner splint, can be used successfully. A padded wooden splint can be wired to the side of the jaw. In the recent literature have appeared descriptions of two types of intraoral splinting which are most interesting: (1) A bivalve cast of acrylic, made and wired into place,[3] (2) a spring of wire made to catch and remain inside the dental arcade, with wires secured to it, supporting the fractures in place.[4] A good description of wiring of jaw fractures has also been given by Liberman.[4]

Several references to surgical treatment of such fractures are given. Mention is made of a technic of mandibular suturing in cat symphyseal fractures. Where teeth are exposed, extraction is necessary as so little bone area capable of healing is exposed and the tooth will die anyway.

If loss of substance to any degree is present as in gunshot fractures, this constitutes a difficult problem. External fixation would appear to be about the only method offering a chance for proper immobilization. Parallel, i.e., longitudinal insertion of intramedullary pins is not the answer. These wounds are infected and hard to keep clean, bone to bone contact is difficult to maintain, and healing is often slow or nonexistent.

*Canine dental caries in occlusal surface molar.*

Distal fractures involving portions of the jaw protected by the heavy masseter muscle frequently require no immobilization.

For those dogs unlucky enough to fracture the distal ends of the mandible so that from the canines forward the end of the jaw hangs down, a combination of lateral and cross-transfixion with wiring has helped.

The cat with a split hard palate is a pitiable sight, but spontaneous recovery with good nursing usually occurs. Repair of a sinus defect can be done. Parallel incisions are made and the freshened edges of the sinus are sutured, the strips of mucous membrane sliding over to cover the defect. It has been my observation that excess scar tissue sometimes continues to grow, occluding the nasal passages and making breathing difficult. Dr. Munson at the Angell Memorial Hospital has used a method of drawing these split palates together with wire inserted through the bone of the upper gums across from one side of the mouth to the other. Twisting traction brings the separated parts together and holds them till healing takes place.

Adaptation of wiring technics used by orthodontists is not usually satisfactory because of the different shape of the teeth of carnivores.

A fracture involving one side of the upper jaw can require removal of the damaged bone and teeth.

We have seen a couple of fractures of the nasal bones where the nose was actually pushed forcibly into the head. Retraction under anesthesia was done and both animals recovered nicely.

In some old Pekingese, Poms and Chihuahuas, where all the teeth have been removed or have fallen out, a resorption of the jaw bones occurs — this will act like a symphyseal fracture. An *x*-ray is self-explanatory.

Some rodents, squirrels, chinchilla, rabbits, etc., require trimming of the incisors which grow continually. This can be done with a Resco nail clipper. These teeth grow continuously and should wear off with normal use.

Dental caries can occur but is uncommon. Infection of the roots is very common and this loosens most teeth so that extraction is not a problem.

This is the first section of an article based on a paper given at The Indiana State Veterinary Medical Association Meeting in Indianapolis, 1960. Parts 2 and 3 will appear in the August and September issues.

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# Case Report: Bovine Hernia Repair

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David City, Neb.

On October 24, 1958, a four year old Polled hereford bull was examined with scrotal hernia. The client was informed that the animal's condition could be corrected surgically as the hernia was not incarcerated. The owner decided to wait a few days, but two days later came to the clinic and stated that the bull was stiff and off feed. There seemed to be need for immediate correction, and the animal was brought to the clinic without delay.

After securing the animal's head in a converted horse stock, he was clipped over the left paralumbar fossa and along the spinal column from a point just anterior to the last thoracic vertebra to a point posterior to the fourth lumbar vertebra. The area was scrubbed thoroughly with soap and water and rubbed briskly with a recommended solution of Chlorhexidine (Fort Dodge).

To 100 cc. of two percent procaine hydrochloride, 150 turbidity units of hyaluronidase was added. Fifteen cc. was injected approximately 1½ in. lateral to the spinous process and just posterior to the lateral process of the first lumbar vertebra, and repeated for the second lumbar vertebra and the last thoracic vertebra. Five cc. of this solution was injected in the same general area for the third lumbar vertebra.

An incision was made approximately midway between the last rib and the hipbone about one-third of the distance down the side. The incision was large enough to accomodate one arm comfortably. The operator inserted the left arm and carefully grasped the loop of the intestine from the scrotum, while an assistant exerted pressure over the external surface of the scrotum.

Using ⅜ in. umbilical tape, three interrupted sutures were placed across the internal inguinal ring, being careful not to involve the spermatic cord. The knot of each suture was secured using the one hand tie method. The abdominal wall was sutured using a continuous suture of no. 2 catgut along the peritoneum and then along the abdominal muscles. The skin was sutured using mattress sutures of no. 6 linen thread. As a precautionary measure, three million units of aqueous penicillin was injected intramuscularly.

The owner was instructed to restrict roughage for two weeks and keep the bull confined for six weeks. The bull was then turned with the cows and has been in service since.

## Conclusion

1. The sequence of injection of the paralumbar block may help speed up the anesthesia for a paralumbar fossa operation.
2. The addition of hyaluronidase to procaine hydrochloride will increase the rapidity of anesthesia of the part.
3. Reduction of scrotal hernia of a bull can be successfully performed by the average practitioner.
4. Clients often do not respect the veterinarian's advice even though they have asked for assistance.
5. As the bull in this case was mature, we feel that this hernia operation was justified.

# Public Health Activities Help A Practice

E. R. PRICE, D.V.M.
Missouri Division of Health

As a respected member of your community you have privileges and responsibilities. Probably the most important is the privilege to practice your profession. You can meet other professional people on equal grounds. You have to look up to no one. Our responsibilities are in proportion to our privileges, and they are by far more important to you and to your community. We might slight some of our privileges, but we cannot turn our back on our responsibilities without danger of hurting ourselves and our profession. Some of the hurt may be to our pocketbooks. All of it will affect our prestige and the prestige of all other veterinarians.

The role you play in a county health organization depends almost entirely on you. You can contribute much to the success of a health program or you can ignore its existence. Your rewards will not always be monetary. Many of them will just give you a good feeling. The action I hope you will take, and has been taken by many veterinarians, is an active one serving as a member of the steering committee, appearing before groups on the radio and television, and giving the program your support. The opponents to such a program cannot honestly accuse you of striving for material gain. If you cannot give your time to the program, you should at least point out the advantages to your clients and request their support. It is my feeling that a veterinarian should serve on this board of trustees that controls the activities of a state health department. County health departments sponsored and supported by the county courts frequently have an advisory board. Some counties use the local practicing veterinarians strictly as consultants. In one county, all of the practicing veterinarians are bona fide members of the health department staff. Regardless of how the practicing veterinarian is affiliated with the health department, he should be active in their program so as to protect not only the health of his neighbors and friends, but to protect livestock.

Probably the most important problem the private veterinarian faces with the health department is dog control, particularly rabies control. If he is an active member of a health team, few derogatory remarks will be made when it is necessary to quarantine an area and require all dogs to be vaccinated. If he has been an outsider as far as the health department is concerned, some tongues will wag. In all cases, it is best for the publicity to emanate from the health department. In fact, all of the work of setting up and supervising clinics should be done by the health department after consultation with the participating veteri-

narians. Unfortunately, the health department frequently hears about rabies vaccination clinics after they have been held. We need up-to-date rabies laws. No rabies committee, department of agriculture, or health department can get a modern law enacted without your help. We know how to control rabies and have repeatedly demonstrated our ability as veterinarians to do so. Still, rabies costs the taxpayers at least $100,000 annually in Missouri alone. Rabies is much easier to control and eventually eradicate than either brucellosis or tuberculosis.

In Missouri, a new program will be undertaken in the near future and will definitely require the participation of many local veterinarians. The division of health is hiring another veterinarian on the central office level. One of his duties will be to develop a unified, voluntary red meat inspection program on the local level. Frequently we are asked by slaughterhouse operators if we can furnish them inspection. Under the proposed program we will endeavor to have adopted locally a standard meat inspection ordinance. A local veterinarian will be hired to do antemortem and postmortem inspection. In addition, he will be responsible for sanitation in and around the plant. Most of these jobs will be part time. Those who need training will receive it. In order to maintain full compliance with the ordinance, unannounced compliance surveys will be made and reports submitted to the city. In addition, the general slaughterhouse sanitation inspection program will be intensified by personnel from the district office. Two things should come out of this program: (1) free movement of quality meat between cooperating cities; (2) a disease-free product handled in a sanitary manner for the housewife. As soon as the red meat program is established a local poultry inspection program will be instituted. A city desiring to include poultry inspection with the red meat program will not be discouraged in adopting such an ordinance; however, separate ordinances will be strongly recommended.

If your town does not have a safe milk supply, it behooves you to see that they do. I must point out one thing in regard to milk inspection. While a practicing veterinarian usually makes a reasonably efficient part time meat inspector, he should think twice before obligating himself as a part time milk inspector because he will have clients to inspect and sooner or later some will need degrading. He will find it most difficult at times to take off his practice hat and put on his inspector's hat.

Diseases of animals, such as anthrax, ringworm or leptospirosis, should be reported to the local health department, or at least to the client's family physician. Close cooperation with the local physician is a two-way street. It can give you some good leads on animal diseases, particularly of small animals.

*Abstracted from Paper presented at the 1960 Missouri V.M.A. Meeting.*

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# A Practical Field Test of Anthelmintics

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Brunswick, Ohio

Due to the wide variation in price of the various sheep anthelmintics available to veterinarians and sheep owners alike, it was decided to conduct a test with several brands of anthelmintics to evaluate their relative effectiveness. Several suppliers of veterinary preparations were contacted about supplying material for this test; one of the distributors sells direct to the livestock owner. All but one of the distributors contacted were cooperative.

## Test Procedure

It was decided to evaluate the effectiveness of the preparations by using a rate of gain scale rather than judging the effectiveness on the basis of pre- and post-dose egg counts. Sufficient parasite counts were conducted to be sure the parasite infection was well distributed throughout the entire flock. A large flock of sheep, kept under average farm conditions, was selected for this test. The lambs and ewes were divided into six lots as evenly as possible, each lamb was weighed. One lot was designated as controls, and these sheep were kept under the same identical conditions as the treated animals. The lambs were dosed according to the manufacturer's directions, one product was mixed in the grain. The animals in this lot were allowed free choice of this mixture for several hours.

## Results

The lot of lambs used on the oral phenothiazine test were rejected from this report, because they would not eat the medicated feed. However, the ewes ate their medicated grain voraciously. Final observations were made 93 days following treatment, and the weight gains from the various test groups are recorded in Table 1. No toxic symptoms from the treatments were observed in any animal.

TABLE 1. Results of Anthelmintic Test

| | No. of Lambs | No. of Ewes | Average Daily Lamb Gain |
|---|---|---|---|
| Controls | 28 | 20 | .157 lbs. |
| A. Phenothiazine | 20 | 20 | .377 " |
| B. Phenothiazine | 27 | 24 | .514 " |
| C. Phenothiazine | 21 | 22 | .420 " |
| D. Copper nicotine sulfate, carbon-tetrachloride, M.O. | 20 | 16 | .507 " |

## Comment

Three phenothiazine products were analyzed by acetone extraction and found to contain the following: preparation A, 71.85% water, 27.16% phenothiazine; preparation B, 72.00% water, 26.88% phenothiazine; preparation C, 73.46% water, 25.33% phenothiazine.

This cannot be construed as anything but a preliminary test. Whether use of a rate of gain scale is a logical measuring device for this type test, can be debated. However, from the standpoint of practical farm management, this would seem to be much more logical than trying to determine efficacy on the basis of ova counts. The main thing this study points out is that the commonly used statement "phenothiazine is phenothiazine" is untrue. Undoubtedly more work of this type should be done to evaluate the preparations which we routinely use in our practice.

## Summary

A controlled test in lambs from a farm flock was conducted with four different anthelmintic preparations. The basis for measuring the effectiveness of the preparations was rate of gain There was a considerable variation between the various groups of lambs. The controls gained 0.15 lbs. per day as an average, whereas, group B phenothiazine lambs gained 0.514 lbs. per day as an average. This study strongly suggests there can be a real difference in anthelmintics available to the veterinarians and sheep owners. Further testing of this type should be conducted.

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Research has established that the etiological factor of "infectious feline enteritis" and of "enteritis in mink" is of a viral nature and that the virus is the same, or at least the two are so closely related that a homologous vaccine prepared from feline tissues injected subcutaneously into newly weaned mink kits resulted in a satisfactory protection.
—*R. R. Dykstra.*

# Reader Comments on Licensed Assistants

This communication is prompted by the article entitled Licensed Assistants in Veterinary Practice (March, 1960 VETERINARY MEDICINE).

Each succeeding decade the practice of veterinary medicine becomes more complex and diversified. The greatest strain is on the one man type of veterinarian in mixed practice.

Physicians are supported by technically trained nurses and trained technicians. Many dentists list a dental technician as a full time employee.

We now have in excess of ten thousand veterinary practitioners. Have we reached the status where it is practical to consider the training and certification of veterinary technicians — individuals who are trained over a two or three year period to serve as full time employees of veterinary practitioners, both in small animal and mixed practices?

Training of veterinary technicians would teach the fundamentals of animal restraint, sanitation and hygiene; pre- and post-surgical preparation and nursing; routine laboratory diagnostic technics, vaccination and blood testing procedures; hospital management, sterilization and maintenance of equipment, etc.

Quoting from a recent technical bulletin by the Agricultural Research Service, which covers a survey of veterinary medicine in the Soviet Union:

> *"Veterinary assistants with specialized training are designated 'feldshers'. They receive approximately 3 years of practical training in schools of veterinary medicine. There are approximately 49,000 feldshers in the entire country. Feldshers who demonstrate a high degree of competence and aptitude*

*Concluded on page 74*

C. M. COOPER, D. V. M., EDITOR

# newsletter

May 31, 1960

If a client doesn't pay your bill the first month after you send it, chances are good it will go unpaid for several months. Here is a tip from a business manager. He says people tend to forget when a service was received. Itemized follow-up statements aren't necessary to bring in the money. Try simply stating - For Professional Services - Jan. $100.00. The month the service was rendered stands out like a sore thumb.

Many people pay their oldest bills first and you should get in line. Keep indicating the month of service until the bill is paid in full. Don't refer to the balance due if the client is paying by installments. If he should pay $50.00 in March, the next statement should read: For Professional Services -- December $100.00.

Pd. March 50.00

$ 50.00

Cobalt therapy, x-ray equipment, and fluroscopic equipment can now be leased for terms of three years and longer. In previous issues VM Newsletter has reviewed the advantages and disadvantages of equipment leasing. It was announced this week that for the first time medical equipment has been made available on long-term lease.

This plan will be conducted through the facilities of the Nationwide Leasing Co. and will be avilable nationally from all Standard X-Ray Co. sales representatives. Further information on the lease plan may be obtained by writing to Standard X-Ray Co., 1932 North Burling St., Chicago 14, or to Nationwide Leasing Company, 11 South LaSalle St., Chicago 3.

If you're working too many hours and common sense tells you it's time to take things a little easier, you might want to consider the action of

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# Canine Distemper and Infectious Hepatitis Vaccine Canine

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DH1 is a combination of Canine Distemper Vaccine (desiccated of chick embryo origin) and Infectious Canine Hepatitis Vaccine (Canine Tissue Origin) in which the Hepatitis fraction has been inactivated. The inactivating agent, completely neutralized, enabling the Hepatitis fraction to mix with the Distemper fraction without endangering the viability of the Modified Live Virus.

DH1 is available in a handy 5 dose carton.

Straight Canine Distemper and Polygen also available.

# Canine Triple Serum

Canine Triple Serum (Canine Origin) is derived from healthy dogs which have been hyperimmunized against Canine Distemper, Infectious Canine Hepatitis and Leptospirosis caused by Leptospira Canicola.

Available in 100 cc. vials.

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*(continued from page 71)*

*may return to a school of veterinary medicine to receive full veterinary education."*

Incidentally, we may mention that the U.S.S.R. lists 42,040 graduate veterinarians.

Probably the inception of trained and certificated veterinary technicians here in America may be a long ways in the future. First we must replace some of our "horse and buggy" practice acts. When this is accomplished there is probably no more risk of a veterinary technician practicing veterinary medicine than there is concern about a nurse establishing a medical practice.

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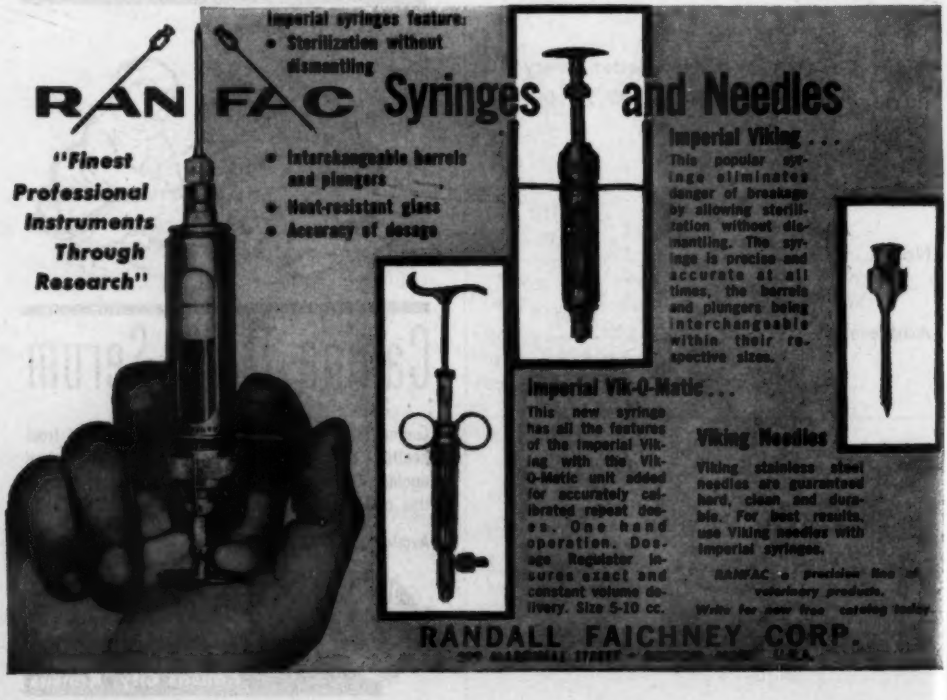
The American Meat Institute Foundation asserts that beef stored for 24 hours at a temperature of 110 F. is as tender as the beef stored for three weeks of aging at a temperature of 35 F.

*R. R. Dykstra, D.V.M.*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"Finest Professional Instruments Through Research"
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Imperial Viking . . .
This popular syringe eliminates danger of breakage by allowing sterilization without dismantling. The syringe is precise and accurate at all times, the barrels and plungers being interchangeable within their respective sizes.
Imperial Vik-O-Matic . . .
This new syringe has all the features of the Imperial Viking with the Vik-O-Matic unit added for accurately calibrated repeat doses. One hand operation. Dosage Regulator insures exact and constant volume delivery. Size 5-10 cc.
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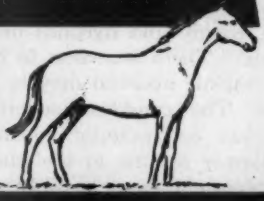

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## "Farmer's Lung" Observations Suggest Studies in Swine Pneumonia

Physician Helen A. Dickie, University of Wisconsin, reported to a recent medical convention on a disease problem termed farmer's lung. This disease rings a note of familiarity with veterinarians who have observed such a syndrome in their farmer clients and perhaps themselves. A recurrent pneumonia associated with recurrent chills, fever, cough, and dyspnea on exertion is typical. There is reason to believe that moldy organic material may be a primary cause. The condition superficially resembles viral or bacterial pneumonia. When the farmer returns to the same environment, recurrence and possibly permanent pulmonary damage results. Handling and vaccination of hogs in a dusty hog house commonly sets off severe respiratory problems of an apparently similar nature. What about the hogs and their chronic pneumonia and respiratory problems?

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## New Armour Manager

W. S. Mitsdarffer has been appointed central division manager of the Veterinary Division of Armour Pharmaceutical Company. Mr. Mitsdarffer joined Armour as a field salesman in 1957 and has worked throughout the Midwest, most recently in Indiana and Illinois. His headquarters will be at the Company's main plant in Kankakee, Ill.

## Allied Labs. in Mexico

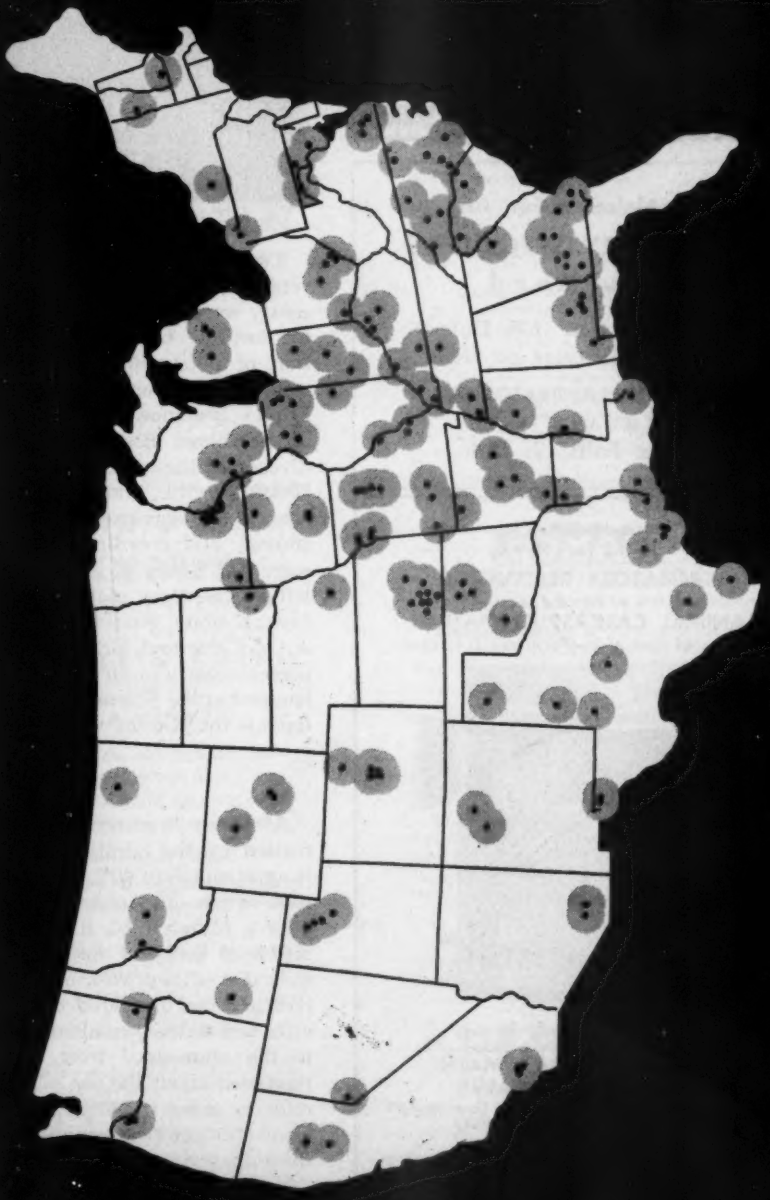
Allied Laboratories, Inc., parent firm of Pitman-Moore Company, Indianapolis pharmaceutical manufacturer, has announced the purchase of Establecimientos Francimex, S. A. in Mexico City.

Francimex is a producer of pharmaceuticals for human use operating in Mexico and has adequate production facilities, personnel and sales force for the introduction of Pitman-Moore's human pharmaceutical line south of the border.

A series of recordings and sound films will be prepared on important dog topics by outstanding and specially qualified speakers, and clubs furnished with either the recordings or films, as preferred. There will be no cost to the club for the loan of either material, except for the two-way shipping charges.

*Research Laboratories'*

# d·vac·h



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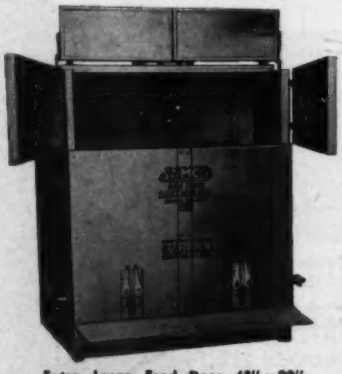

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## K. S. U. Honors Key Alumni

Two alumni of the Kansas State University School of Veterinary Medicine recently were presented "Distinguished Service Awards" by the University in recognition of outstanding service to veterinary medicine. Honored were Dr. Aubrey McDaniel Lee, now assistant to the director of the animal disease and parasite research division of the agricultural research service, Beltsville, Md., and Dr. Richard D. Turk, head of the department of veterinary parasitology and coordinator of veterinary research at Texas A. and M. College. From left in the above picture are Dr. and Mrs. Lee, K-State President and Mrs. James A. McCain, and Dr. and Mrs. Turk. The presentation was on May 20 at the annual banquet of the Kansas State University conference for Kansas veterinarians.

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At times dysentery in calves has been treated by the addition of formalin. This is approximately 40% formaldehyde, to the milk ration. In Animal Production, Vol. 2, Part 1, March 1960, it is reported that addition of 0.1% of formalin to the whole milk diet of two week old calves, when the change from untreated to formalin treated milk was sudden, resulted in severe damage to the alimentary tract. No evidence is presented about the use of formalin treated milk to older calves nor when the calves were accustomed gradually to formalin in the milk.

*R. R. Dykstra, D.V.M.*

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# Veterinary Calendar

June 27-28. **The Tennessee State Board of Veterinary Medical Examiners,** examination for state license. Committee Room No. 1, State Capitol Building, Nashville, Tennessee. Thomas H. Bullington, D.V.M., Secretary, Route 3, Fayetteville, Tennessee.

July 12-13. **Iowa State University,** annual conference. Memorial Union, Ames, Iowa.

July 18-19. **Kentucky Veterinary Medical Association,** 49th annual convention. Sheraton-Seelbach Hotel, Louisville, Kentucky. L. S. Shirrell, DVM, secretary.

July 20-22. **Swine Repopulation Conference.** Extension Service, College of Agriculture, University of Nebraska, Lincoln, Nebraska. Crosby Howe, DVM.

July 24-27. **Canadian Veterinary Medical Association,** annual convention. Halifax, Nova Scotia. Dr. M. D. Harlow, Box 1153, Halifax, Nova Scotia.

Aug. 1-2. **Arkansas Veterinary Practitioners' Association,** annual meeting. Holiday Inn, Hot Springs, Arkansas. Wayne H. Babbitt, DVM, 204 East 13th Street, North Little Rock, Arkansas, secretary-treasurer.

Aug. 14-18. **American Veterinary Medical Association,** 97th Annual Meeting, Denver, Colorado.

Aug. 14. **Conference of Public Health Veterinarians,** business meeting in conjunction with the Annual Meeting of the AVMA. Joe W. Atkinson, D.V.M., Secretary-Treasurer, National Institutes of Health, Bethesda 14, Maryland.

Aug. 14. **American College of Veterinary Toxicologists,** third annual meeting. Denver Hilton Hotel, Denver, Colorado. William F. Harris, Secretary, 1102 East Main, Puyallup, Washington.

Sept. 14. **Central Indiana Veterinary Medical Association,** annual Symposium on small animal medicine. Indianapolis, Indiana. L. Bruce Horrall, D.V.M., Secretary, Mooresville, Indiana.

Oct. 8. **Helminthological Society of Washington,** Fiftieth Anniversary Program. University of Maryland, College Park, Maryland. Evening banquet, Naval Officers Club, Bethesda, Maryland.

Oct. 13-14. **Eastern Iowa Veterinary Association,** 47th Annual Meeting. Hotel Montrose, Cedar Rapids, Iowa. Grant B. Munger, D.V.M., Secretary, 1921 First Avenue, S.E., Cedar Rapids, Iowa.

Oct. 16-19. **New England Veterinary Medical Association,** 26th Annual Meeting. Sheraton Biltmore Hotel, Providence, Rhode Island. Warren J. Comstock, D.V.M., Clayville, Rhode Island.

Oct. 23-26. **The Southern Veterinary Medical Association,** annual meeting. Francis Mation Hotel, Charleston, S. C. Otto M. Storck, D.V.M., General Chairman, 461 Maybank Highway, Charleston, S. C.

*This department will announce each issue new therapeutic items, equipment, services, and literature of interest to veterinarians. All claims made are those of the firms concerned. Send communications to the address noted.*

# Reader's Service

CAT STOCKS for securing animal during castration are offered. Stocks permit the

assistant to hold any cat safely. Two models are available: a solid teakwood, beautifully executed and finished by old country craftsman or a kit of high altitude Ponderosa pine. Write William B. Hancock DVM, 1506 Northwest 28th Street, Fort Worth 6, Texas.

A new line of WALK-IN ENVIRONMENTAL ROOMS with two temperature ranges, ambient to 140 F. and 0 F. to 140 F., accurate within plus-minus 1 F. is being marketed. The test rooms are constructed in convenient panel form, shipped knocked down to permit easy access through narrow doorways. They are quickly assembled. All models have fully enclosed heating elements and come in a number of stock sizes. A unique feature of the Labline test room is the plenum chamber construction which eliminates all interior ducts and louvers.

The test rooms measure: 6 ft. x 6 ft., 6 ft. x 8 ft., 6 ft. x 10 ft., and 6 ft. x 12 ft. Inside working height is 7 feet. Other sizes can be made to specific requirements. All models have a 12 inch x 12 inch Thermo-pane viewing window. They may be set in a corner or hallway, yet can be easily moved when necessary. They are ideally suited for the preservation and storage of biologicals, extracts, insecticides and samples, incubation of cultures, fermentation of antibiotics and B.O.D. tests.

Write Labline, Inc., 3070-82 West Grand Ave., Chicago 22, Illinois.

New DESKSIDE INTERCOM offers more efficient use of office work space by providing versatile placement of the units. A bracket attachment, optional with all new Talk-A-Phone office and industry models, makes it possible to place the intercom on

the side of a desk, on a wall, table, or in other positions, thus freeing additional work

space. For information write Talk-A-Phone Co., 5013 N. Kedzie Ave., Chicago 25, Illinois.

The first ready-to-use parenteral form of a BROAD-SPECTRUM ANTIBIOTIC specifically designed for veterinary practice has been introduced by Chas. Pfizer & Co., Inc. Liquamycin Injectable is a clear sterile, stable solution containing 50 mg. of oxytetracycline hydrochloride activity per cc. It is indicated in the prevention and treatment of many common infections caused by oxytetracycline-susceptible organisms in cattle, calves, sheep, lambs, swine and poultry.

This new injectable formulation of oxytetracycline permits economical treatment by means of the most efficient routes of administration. Liquamycin Injectable is stable at room temperatures and requires no refrigeration. It will not freeze even under conditions of extreme cold often encountered in practice.

Liquamycin Injectable may be administered by intravenous, intramuscular or subcutaneous injection. It is available in 50 cc. vials and 500 cc. bottles.


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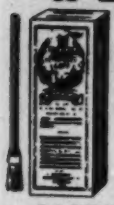

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Background in animal and/or poultry husbandry. Travel will be required in contacting veterinary and agricultural colleges, practitioners, feed mills etc.

Excellent suburban location Northern N. J. near New York City. Liberal Company benefits.

Please submit resume, listing detailed qualifications & salary requirements. Box # 663.

## X-Ray Studies of Dwarf Calves

Penn State University has embarked on a research project using x-ray equipment to eliminate dwarf strains from breeding stock and assure higher beef production. Falklands Farms at Schellsburg, one of the East's largest breeders of Purebred Hereford cattle, is one of several locations where field research will be conducted.

The first group of some 300 calves — the total expected this year at Falklands Farms — has been x-rayed with custom built equipment manufactured by the Westinghouse Electric Corporation's x-ray division at Baltimore, Md.

Although the project is just getting under way at Penn State, considerable research in the field of x-ray examination of calves has been conducted in the laboratories at Iowa State University since 1953. Penn State plans to use a portable x-ray unit for field work on the project this summer. Dr. Miller is continuing his research in the field of x-ray examination of detecting dwarfs and dwarf carriers. He stated that in spite of research dealing with blood studies, to date the x-ray technic appears to be the most promising method of positively identifying dwarf carriers.

---

## Sweet Clover Poisoning In Cattle

In the handling of so-called "sweet clover poisoning" (dicoumarin poisoning) in cattle, vitamin K has been recommended to restore the clotting ability of the blood. In this connection it is well to bear in mind that only the natural vitamin K is helpful, and its help is comparatively small and expensive. The synthetic analogs are entirely inert. Withholding the sweet clover from affected animals, placing them on a wholesome diet, and avoiding surgery is still standard treatment.

*R. R. Dykstra, D.V.M.*

# Over 9,000,000 doses of NEO·VAC with NEOJEL PATENT PENDING used to fight ERYSIPELAS in Turkeys and Swine with excellent results

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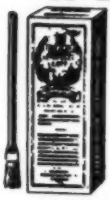

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## Veterinary Journalist Joins Eaton Labs.

R. D. Burns, D.V.M.

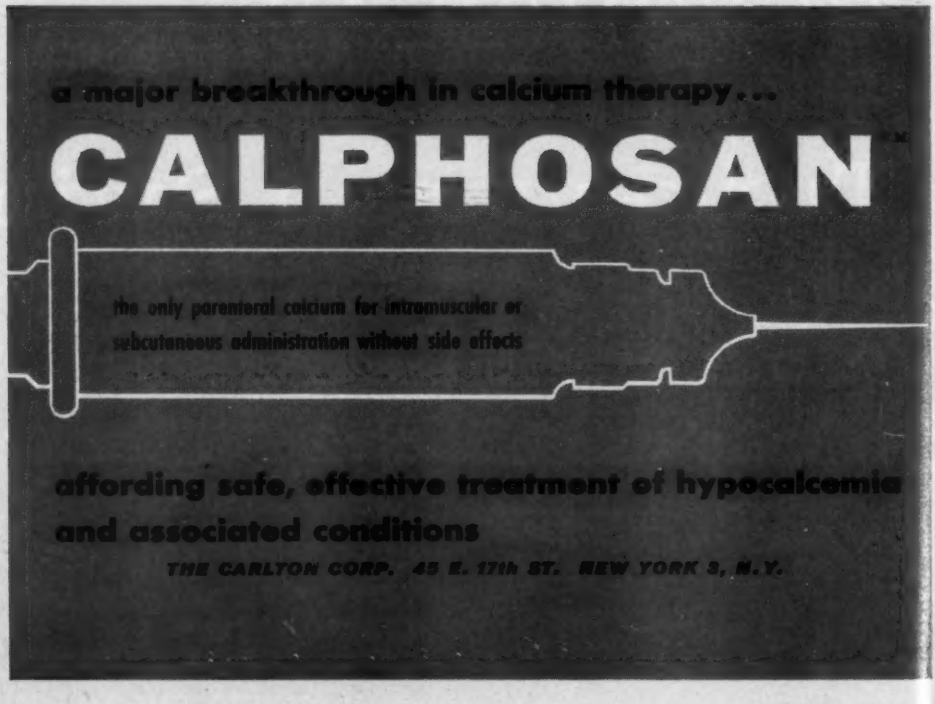
A specialist in veterinary writing, Richard D. Burns, D.V.M., has been named senior veterinary editor in the scientific information division of the Norwich Pharmacal Company.

Dr. Burns will handle the volume of editing and abstracting necessary to service the veterinary section of Eaton Laboratories, Norwich's ethical pharmaceutical division.

### New Isotope Laboratory

The Norwich Pharmacal Company, recently placed in operation a modern radioisotope laboratory designed to study the action of the nitrofurans. The nitrofurans are a group of synthetic anti-microbial compounds, developed by Norwich and provided to the medical and veterinary professions by the company's Eaton Laboratories Division.

The new laboratory will use radioactive carbon 14-tagged nitrofuran molecules in its studies of mode of action and disposition of the compounds in laboratory animals. Use of the modern "atomic-age" technic will give scientists a better picture of what happens to the nitrofuran molecule after it enters the body.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